



# Reliability Data

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Radial Lead Aluminum Electrolytic Capacitors

## KXG series

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Test:

Endurance  
Shelf life  
Temperature Characteristics  
Frequency Characteristics

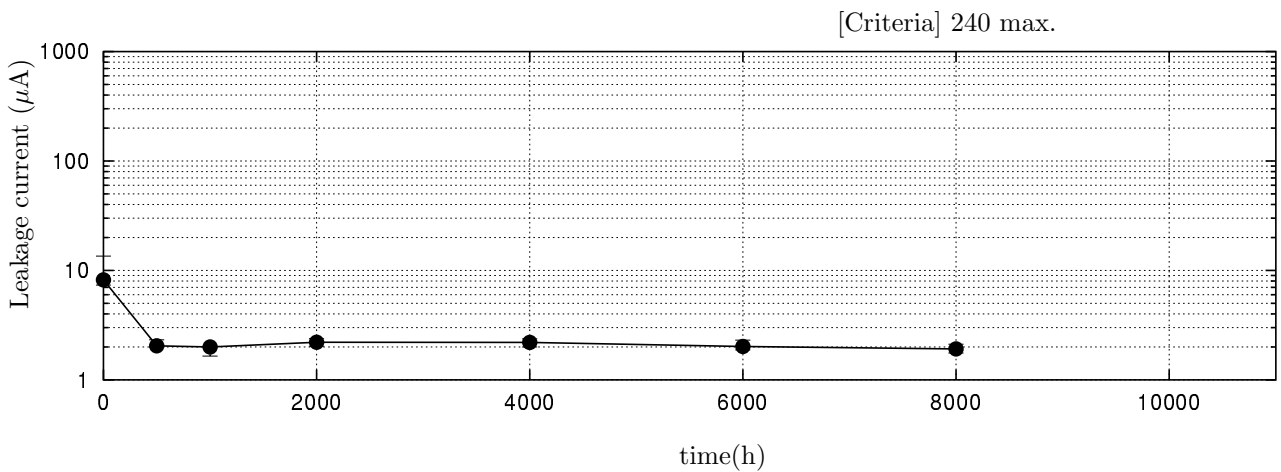
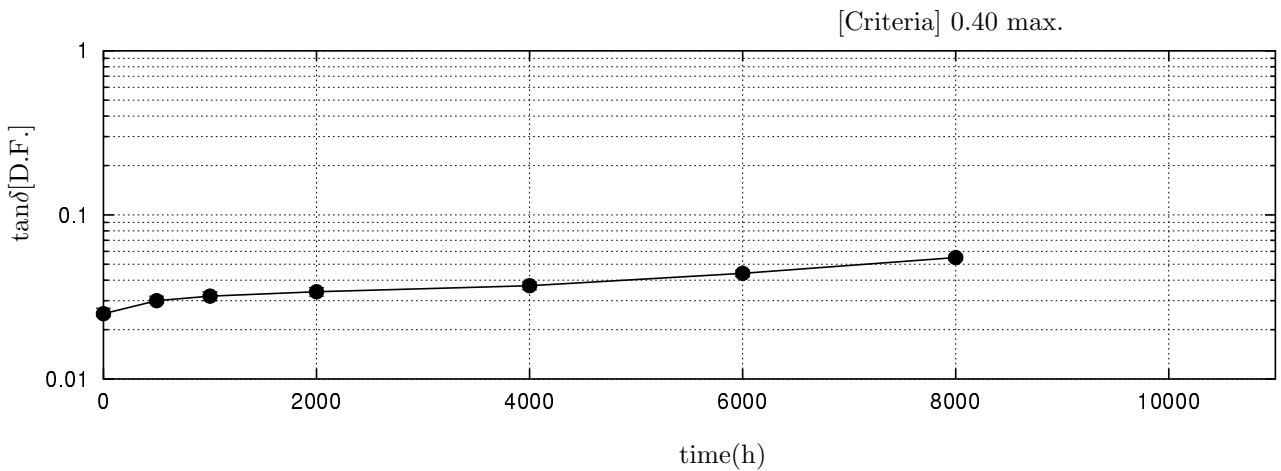
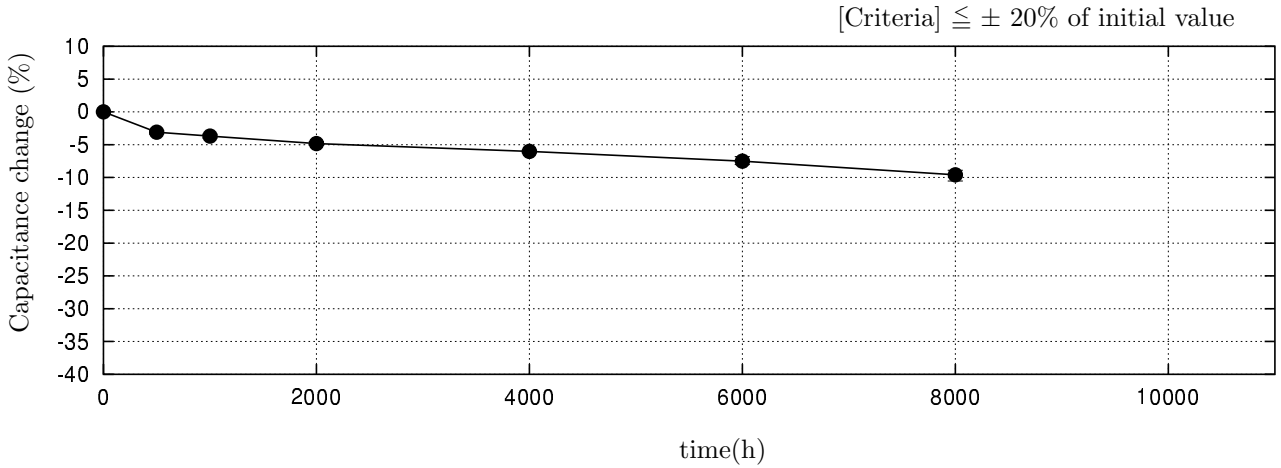
Item:

EKXG161ELL220MJ20S (160V22 $\mu$ F, $\phi$ 10 $\times$ 20L)  
EKXG161ELL221ML25S (160V220 $\mu$ F, $\phi$ 16 $\times$ 25L)  
EKXG251ELL470MK20S (250V47 $\mu$ F, $\phi$ 12.5 $\times$ 20L)  
EKXG401ELL6R8MJ16S (400V6.8 $\mu$ F, $\phi$ 10 $\times$ 16L)  
EKXG451ELL100MK20S (450V10 $\mu$ F, $\phi$ 12.5 $\times$ 20L)

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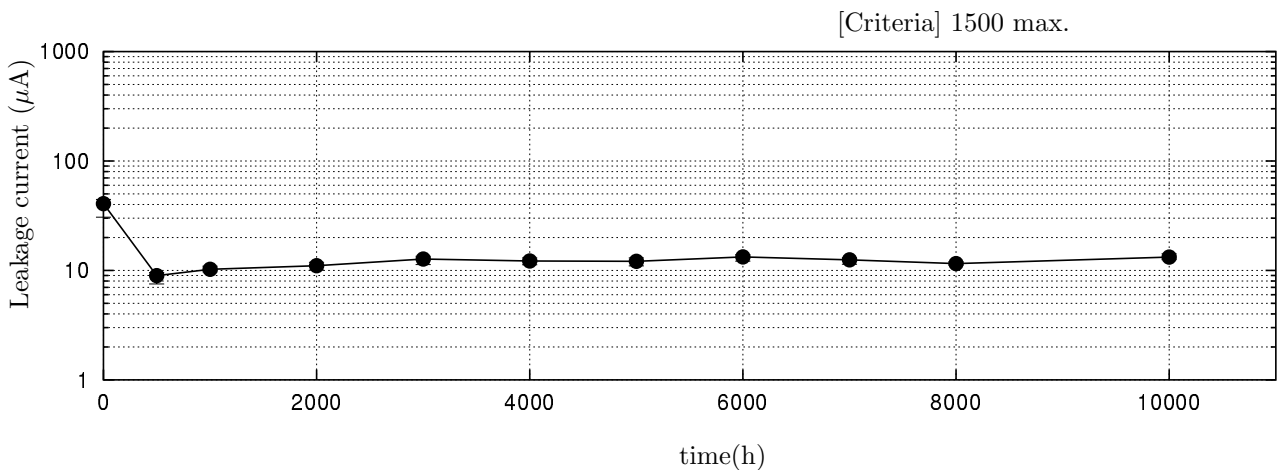
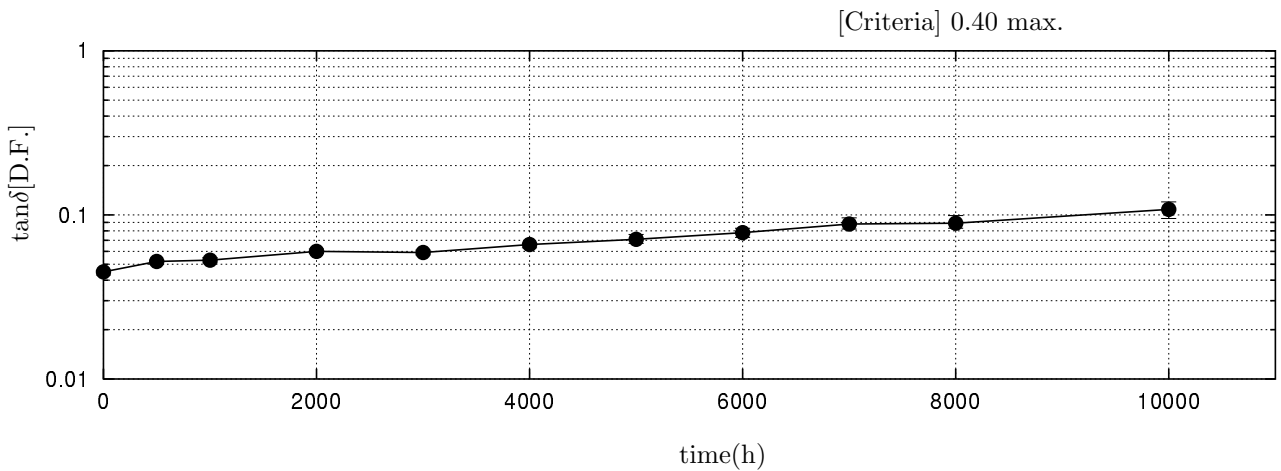
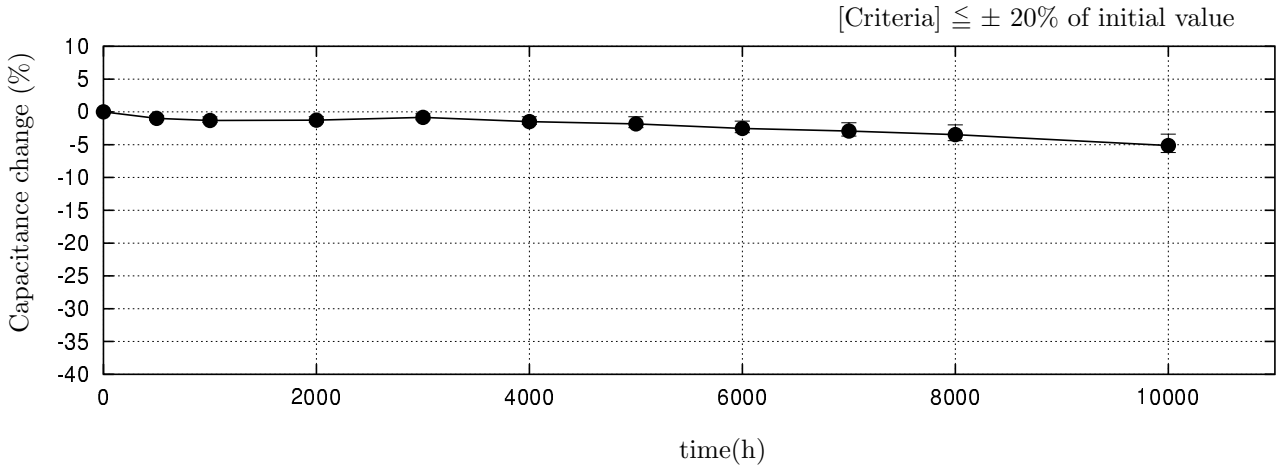
Aluminum Electrolytic Capacitor Reliability data

| Test name       |                    | Endurance               |                         |                          |                 |
|-----------------|--------------------|-------------------------|-------------------------|--------------------------|-----------------|
| Test temp.      | 105 (°C)           | Leakage Current (Volt)  | 160 (V)                 | Measurement LCR meter    | 4284A           |
| Applied Voltage | (V)                | Leakage Current (Time)  | 1 (min)                 | Measurement Freq.        | 120 (Hz)        |
| Ripple Current  | 0.200 (Arms)       | Leakage Current (Temp.) | 20 (°C)                 | Measurement Temp.        | 20 (°C)         |
| Ripple freq.    | 120 (Hz)           |                         |                         | Specified Period of Time | 8000 (h)        |
| Mark            | Part No.           | Rated Voltage(V)        | Nominal Capacitance(μF) | Case Size(φ × L)mm       | Tested qty(pcs) |
| ●               | EKXG161ELL220MJ20S | 160                     | 22                      | φ 10×20 L                | 6               |



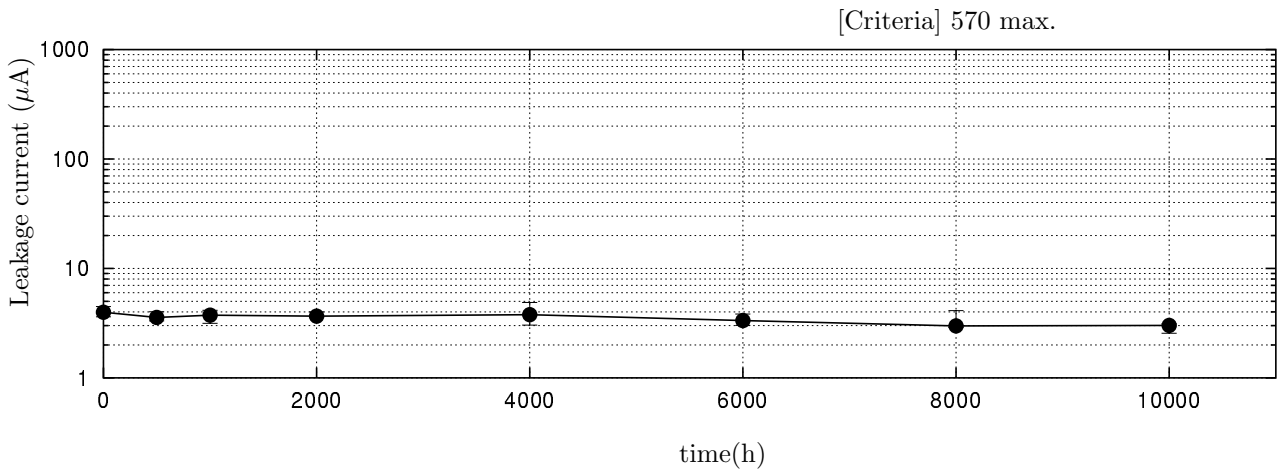
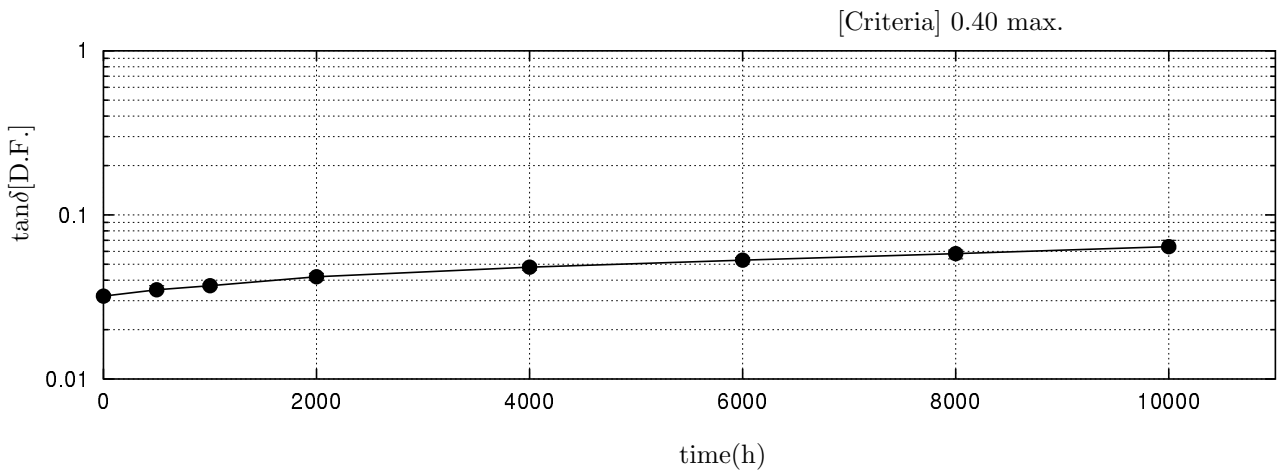
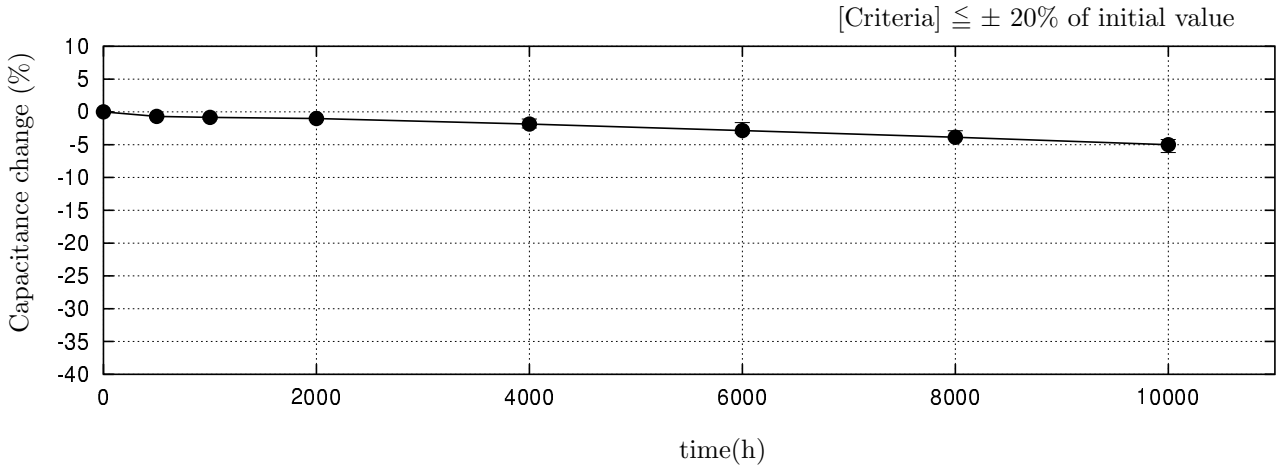
Aluminum Electrolytic Capacitor Reliability data

| Test name       |                    | Endurance               |                         |                          |                 |
|-----------------|--------------------|-------------------------|-------------------------|--------------------------|-----------------|
| Test temp.      | 105 (°C)           | Leakage Current (Volt)  | 160 (V)                 | Measurement LCR meter    | 4284A           |
| Applied Voltage | (V)                | Leakage Current (Time)  | 1 (min)                 | Measurement Freq.        | 120 (Hz)        |
| Ripple Current  | 1.02 (Arms)        | Leakage Current (Temp.) | 20 (°C)                 | Measurement Temp.        | 20 (°C)         |
| Ripple freq.    | 120 (Hz)           |                         |                         | Specified Period of Time | 10000 (h)       |
| Mark            | Part No.           | Rated Voltage(V)        | Nominal Capacitance(μF) | Case Size(φ × L)mm       | Tested qty(pcs) |
| ●               | EKXG161ELL221ML25S | 160                     | 220                     | φ 16×25 L                | 6               |



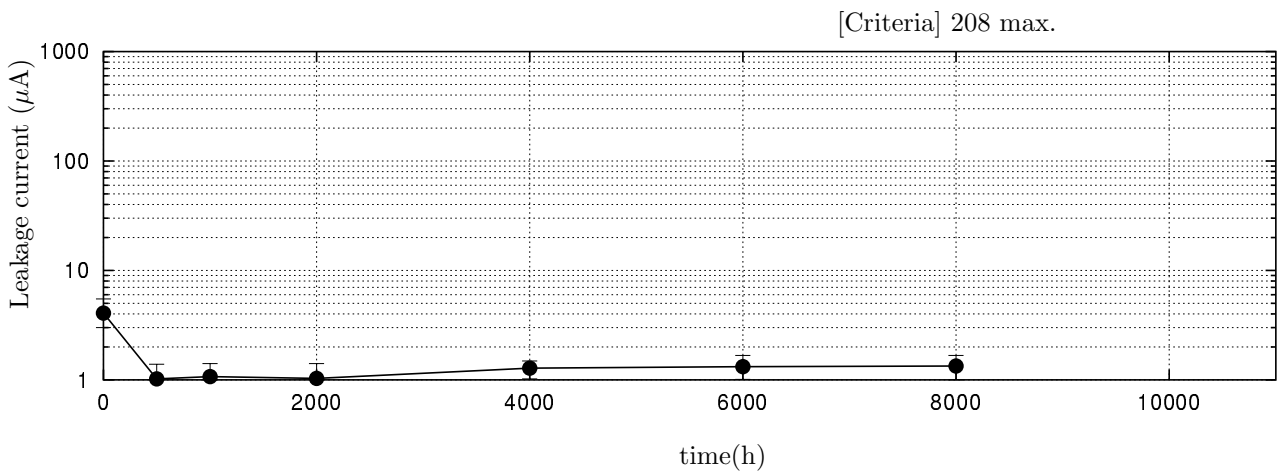
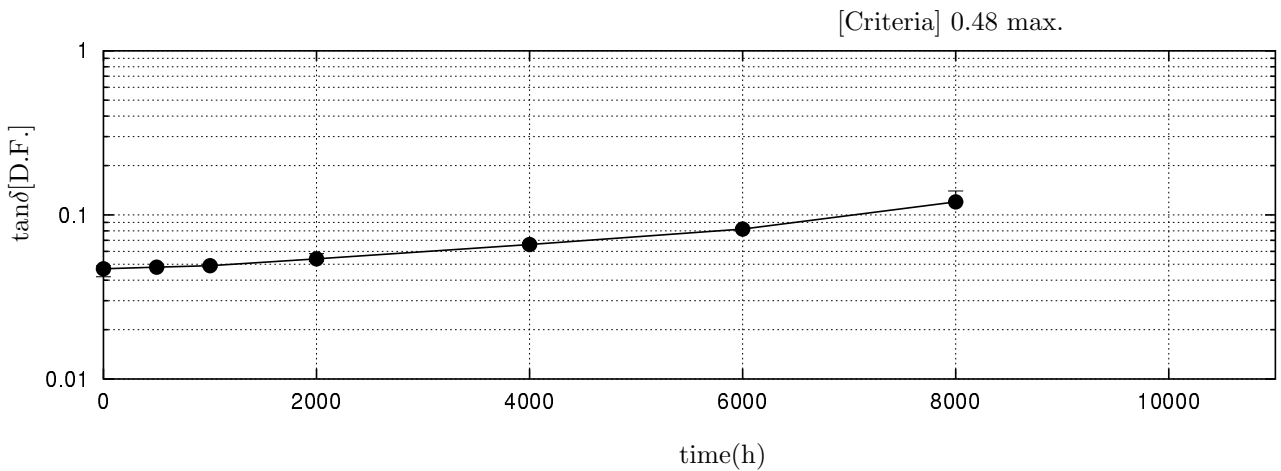
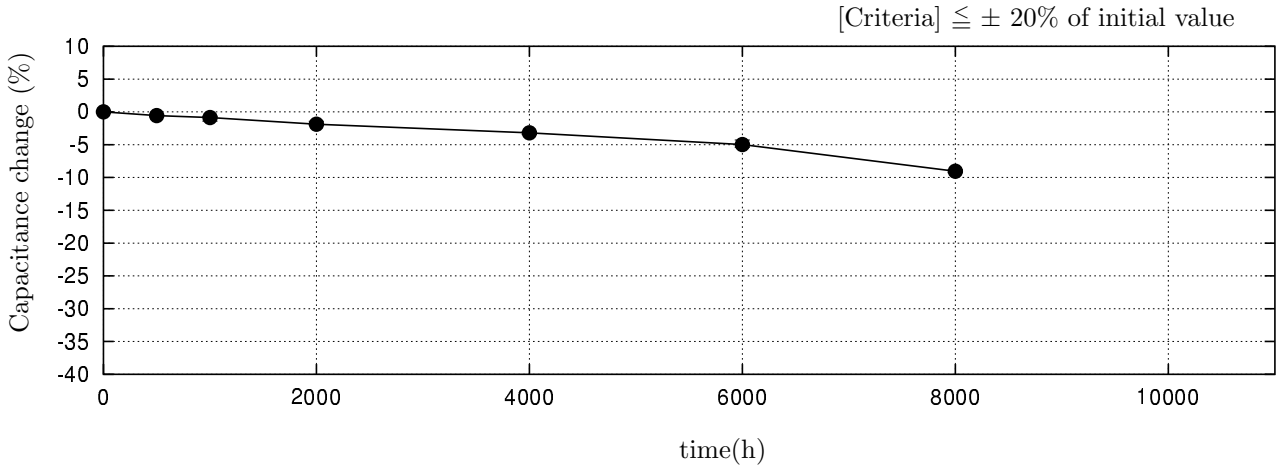
Aluminum Electrolytic Capacitor Reliability data

| Test name       |                    | Endurance               |                         |                          |                 |
|-----------------|--------------------|-------------------------|-------------------------|--------------------------|-----------------|
| Test temp.      | 105 (°C)           | Leakage Current (Volt)  | 250 (V)                 | Measurement LCR meter    | 4284A           |
| Applied Voltage | (V)                | Leakage Current (Time)  | 1 (min)                 | Measurement Freq.        | 120 (Hz)        |
| Ripple Current  | 0.390 (Arms)       | Leakage Current (Temp.) | 20 (°C)                 | Measurement Temp.        | 20 (°C)         |
| Ripple freq.    | 120 (Hz)           |                         |                         | Specified Period of Time | 10000 (h)       |
| Mark            | Part No.           | Rated Voltage(V)        | Nominal Capacitance(μF) | Case Size(φ × L)mm       | Tested qty(pcs) |
| ●               | EKXG251ELL470MK20S | 250                     | 47                      | φ 12.5×20 L              | 6               |



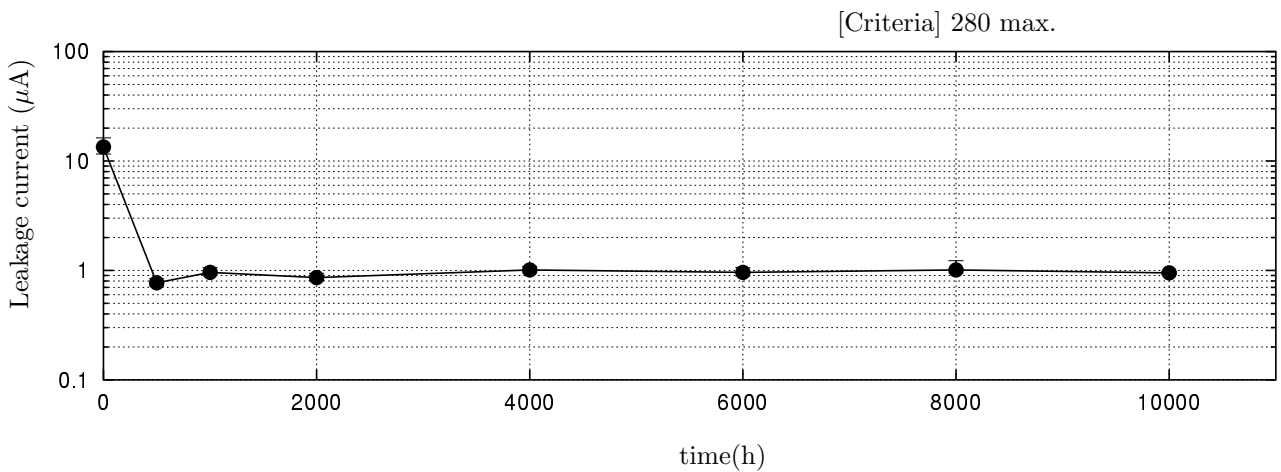
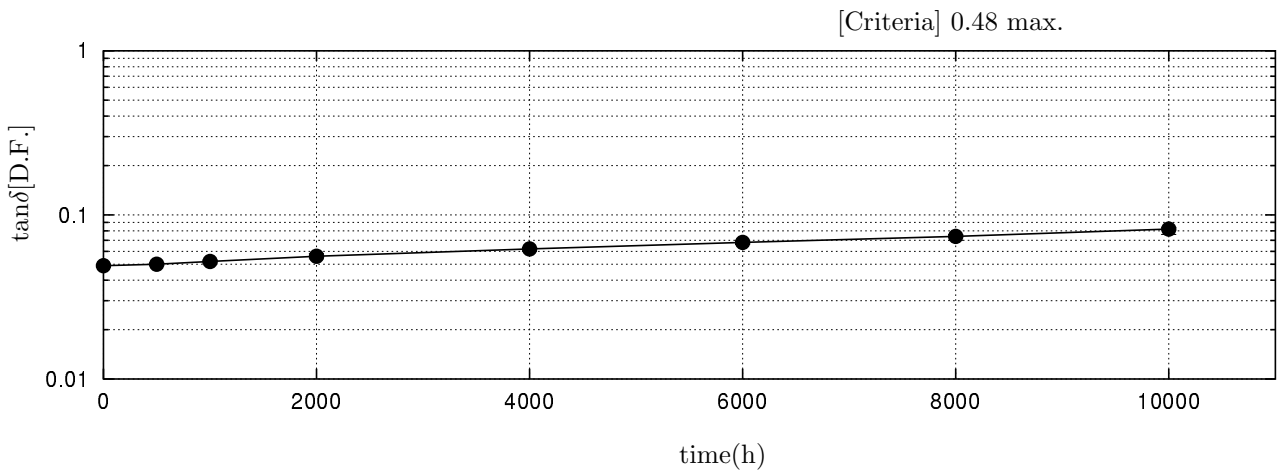
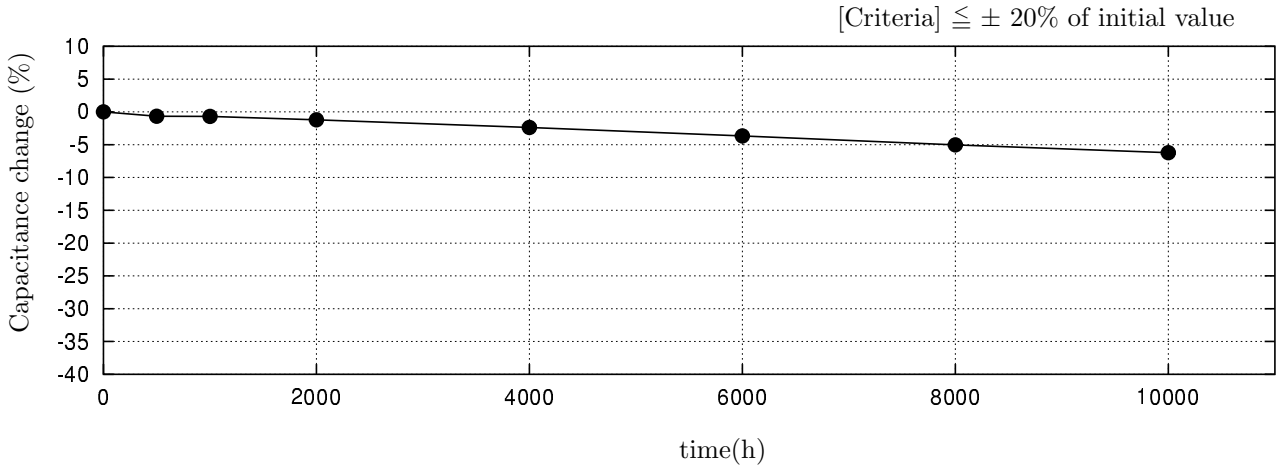
Aluminum Electrolytic Capacitor Reliability data

| Test name       |                    | Endurance               |                         |                          |                 |
|-----------------|--------------------|-------------------------|-------------------------|--------------------------|-----------------|
| Test temp.      | 105 (°C)           | Leakage Current (Volt)  | 400 (V)                 | Measurement LCR meter    | 4284A           |
| Applied Voltage | (V)                | Leakage Current (Time)  | 1 (min)                 | Measurement Freq.        | 120 (Hz)        |
| Ripple Current  | 0.110 (Arms)       | Leakage Current (Temp.) | 20 (°C)                 | Measurement Temp.        | 20 (°C)         |
| Ripple freq.    | 120 (Hz)           |                         |                         | Specified Period of Time | 8000 (h)        |
| Mark            | Part No.           | Rated Voltage(V)        | Nominal Capacitance(μF) | Case Size(φ × L)mm       | Tested qty(pcs) |
| ●               | EKXG401ELL6R8MJ16S | 400                     | 6.8                     | φ 10×16 L                | 6               |



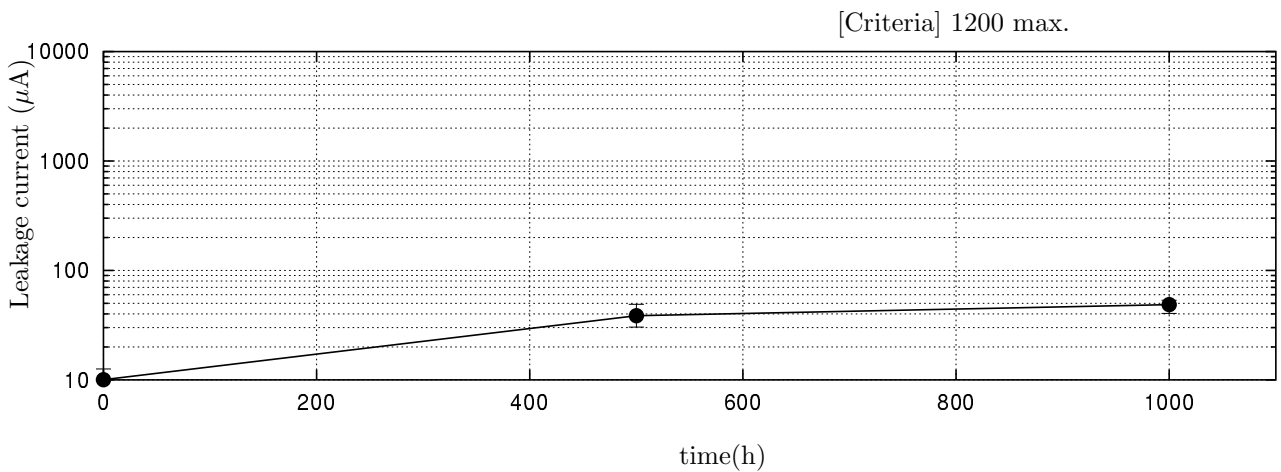
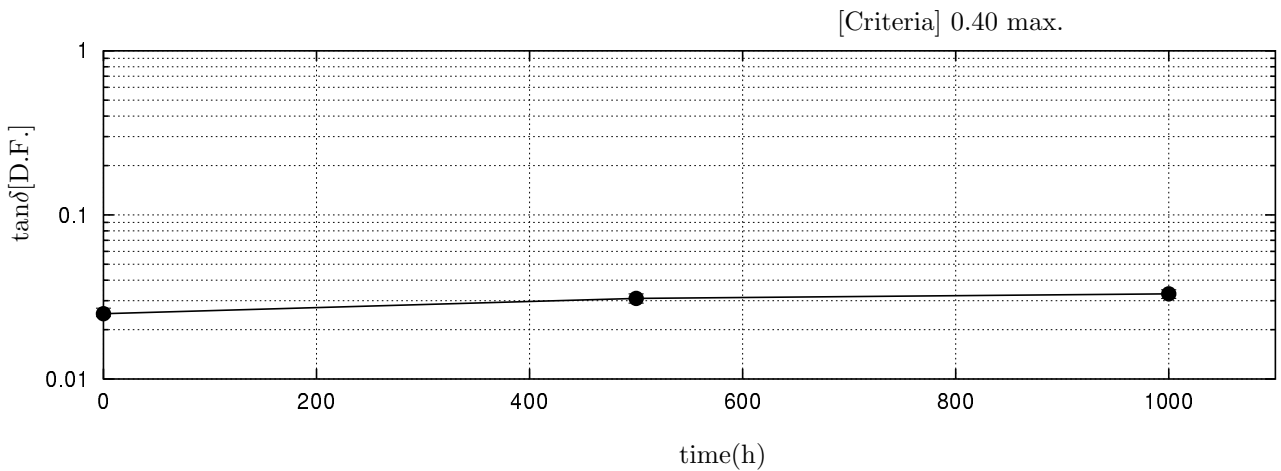
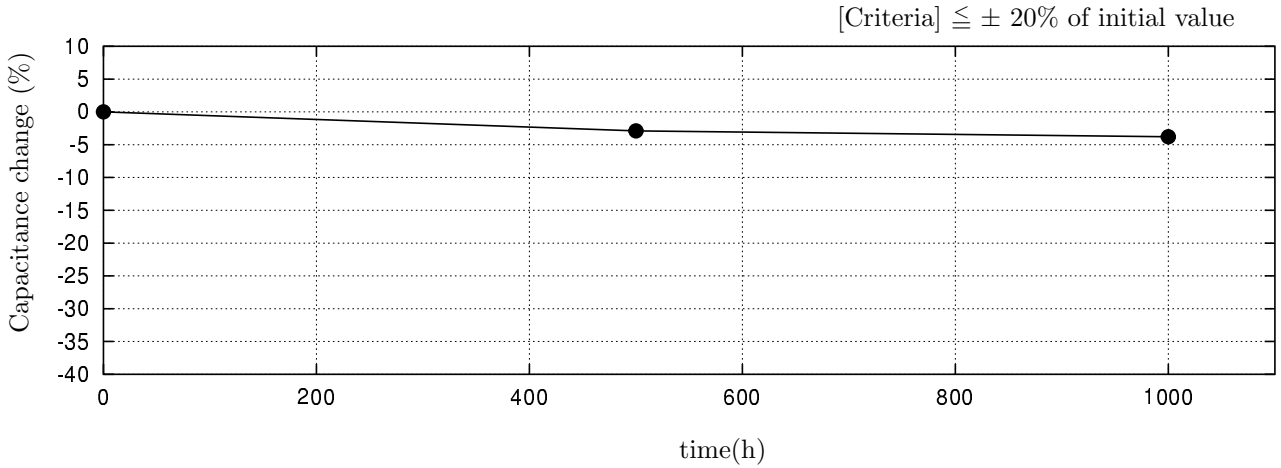
Aluminum Electrolytic Capacitor Reliability data

| Test name       |                    | Endurance               |                         |                          |                 |
|-----------------|--------------------|-------------------------|-------------------------|--------------------------|-----------------|
| Test temp.      | 105 (°C)           | Leakage Current (Volt)  | 450 (V)                 | Measurement LCR meter    | 4284A           |
| Applied Voltage | (V)                | Leakage Current (Time)  | 1 (min)                 | Measurement Freq.        | 120 (Hz)        |
| Ripple Current  | 0.180 (Arms)       | Leakage Current (Temp.) | 20 (°C)                 | Measurement Temp.        | 20 (°C)         |
| Ripple freq.    | 120 (Hz)           |                         |                         | Specified Period of Time | 10000 (h)       |
| Mark            | Part No.           | Rated Voltage(V)        | Nominal Capacitance(μF) | Case Size(φ × L)mm       | Tested qty(pcs) |
| ●               | EKXG451ELL100MK20S | 450                     | 10                      | φ 12.5×20 L              | 6               |



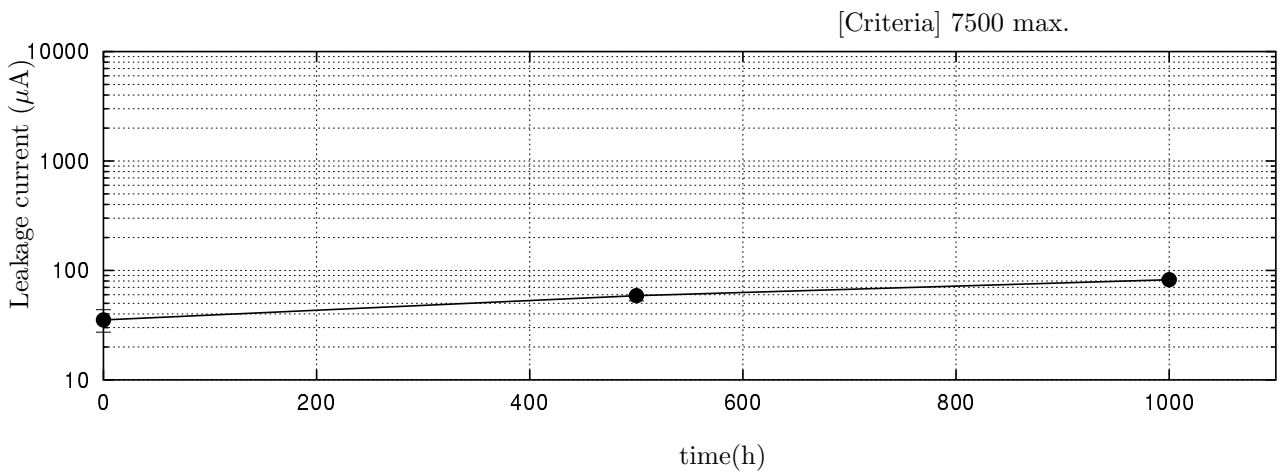
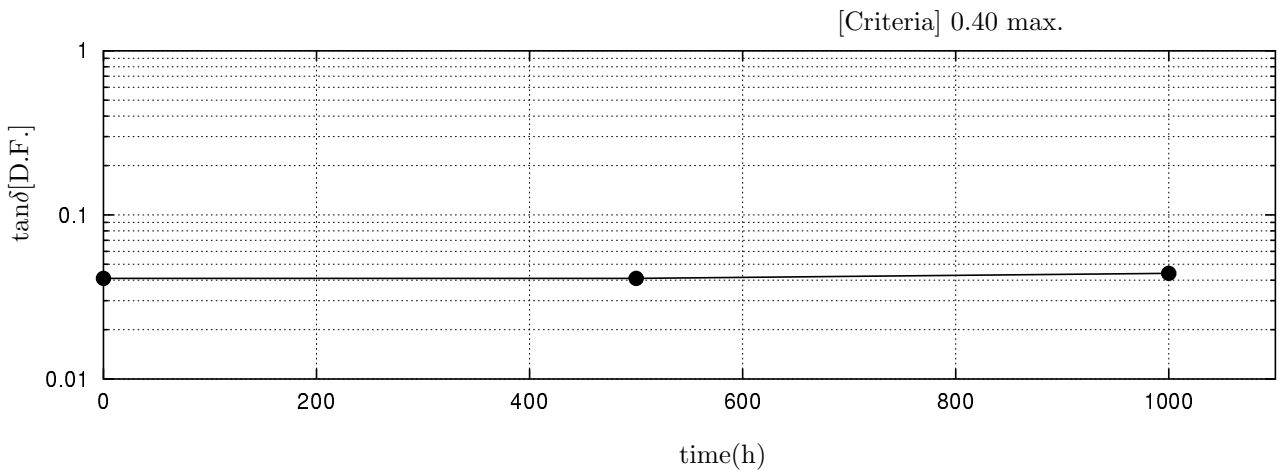
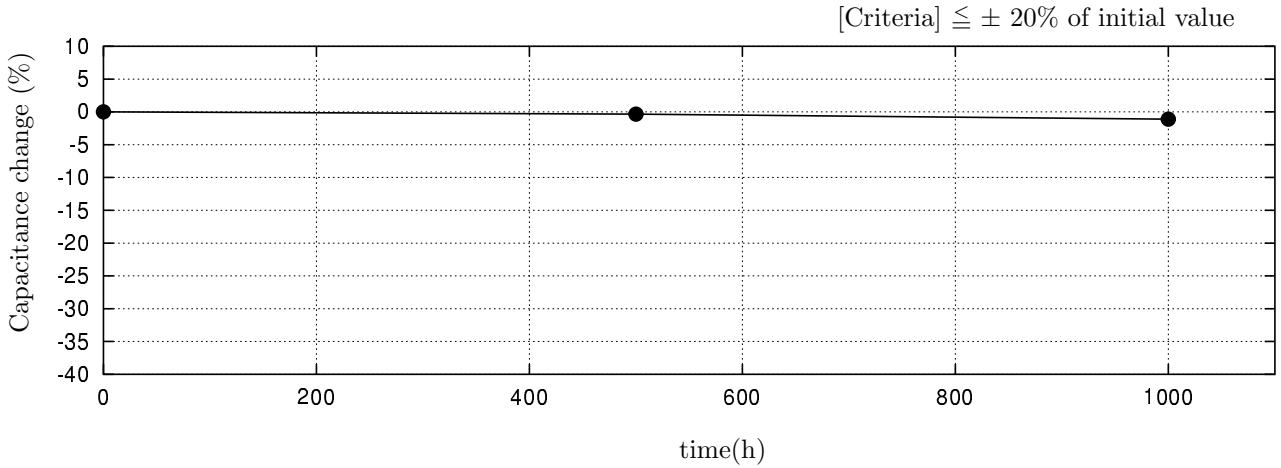
Aluminum Electrolytic Capacitor Reliability data

| Test name       |                    | Shelf life              |                         |                          |                 |
|-----------------|--------------------|-------------------------|-------------------------|--------------------------|-----------------|
| Test temp.      | 105 (°C)           | Leakage Current (Volt)  | 160 (V)                 | Measurement LCR meter    | 4284A           |
| Applied Voltage | (V)                | Leakage Current (Time)  | 1 (min)                 | Measurement Freq.        | 120 (Hz)        |
| Ripple Current  | (Arms)             | Leakage Current (Temp.) | 20 (°C)                 | Measurement Temp.        | 20 (°C)         |
| Ripple freq.    | (Hz)               |                         |                         | Specified Period of Time | 1000 (h)        |
| Mark            | Part No.           | Rated Voltage(V)        | Nominal Capacitance(μF) | Case Size(φ × L)mm       | Tested qty(pcs) |
| ●               | EKXG161ELL220MJ20S | 160                     | 22                      | φ 10×20 L                | 10              |



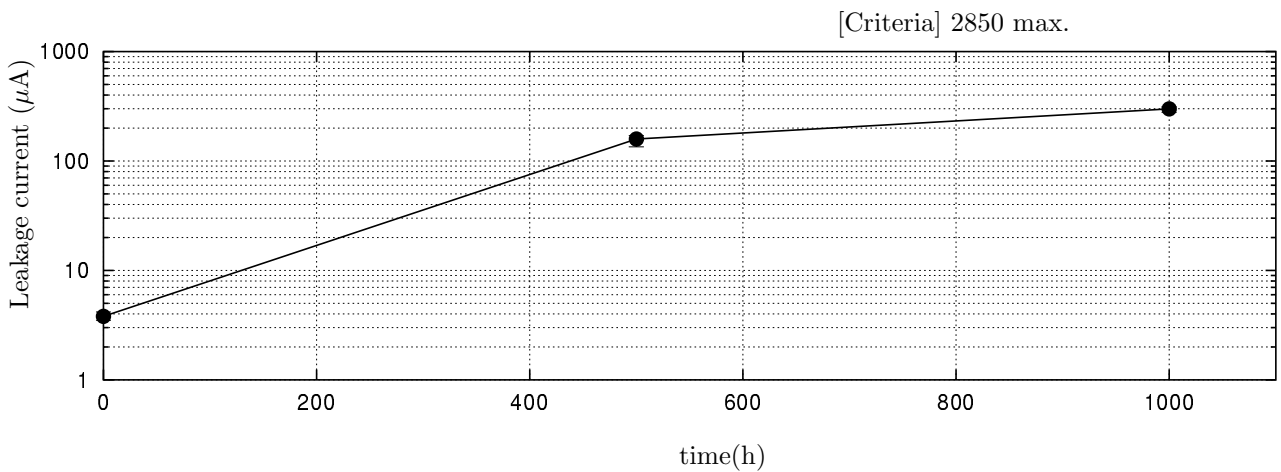
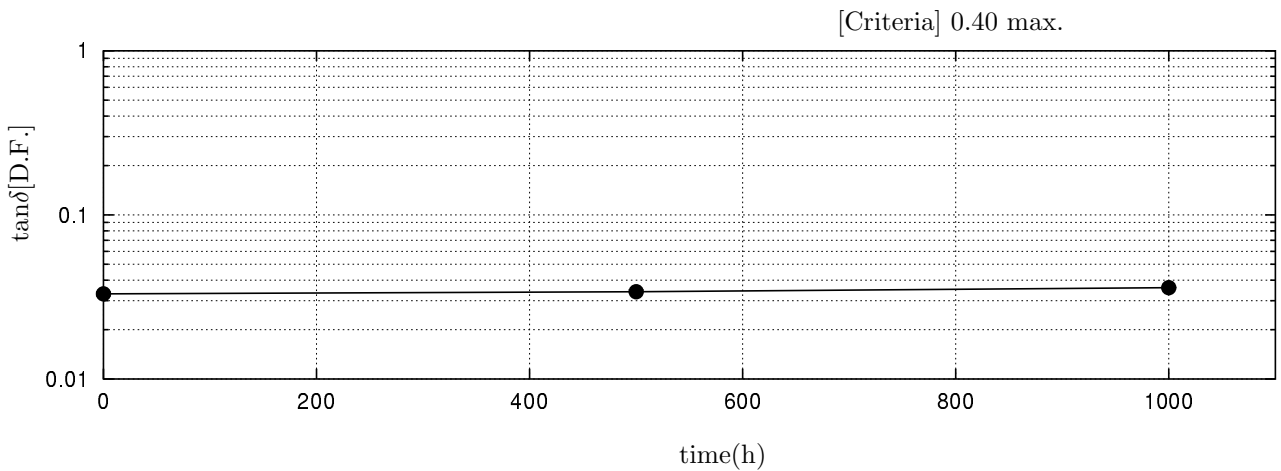
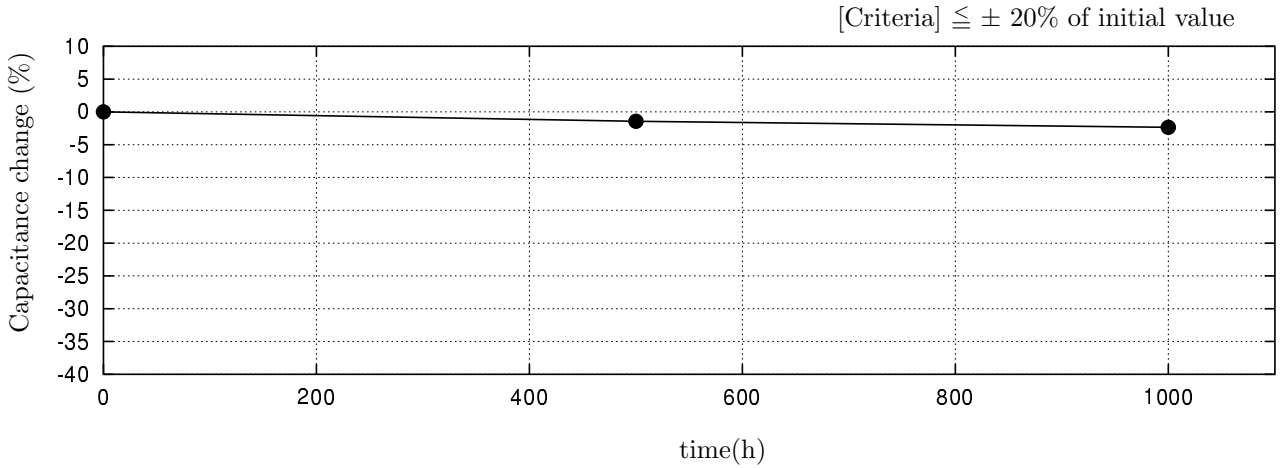
Aluminum Electrolytic Capacitor Reliability data

| Test name       |                    | Shelf life              |                         |                          |                 |
|-----------------|--------------------|-------------------------|-------------------------|--------------------------|-----------------|
| Test temp.      | 105 (°C)           | Leakage Current (Volt)  | 160 (V)                 | Measurement LCR meter    | 4284A           |
| Applied Voltage | (V)                | Leakage Current (Time)  | 1 (min)                 | Measurement Freq.        | 120 (Hz)        |
| Ripple Current  | (Arms)             | Leakage Current (Temp.) | 20 (°C)                 | Measurement Temp.        | 20 (°C)         |
| Ripple freq.    | (Hz)               |                         |                         | Specified Period of Time | 1000 (h)        |
| Mark            | Part No.           | Rated Voltage(V)        | Nominal Capacitance(μF) | Case Size(φ × L)mm       | Tested qty(pcs) |
| ●               | EKXG161ELL221ML25S | 160                     | 220                     | φ 16×25 L                | 10              |



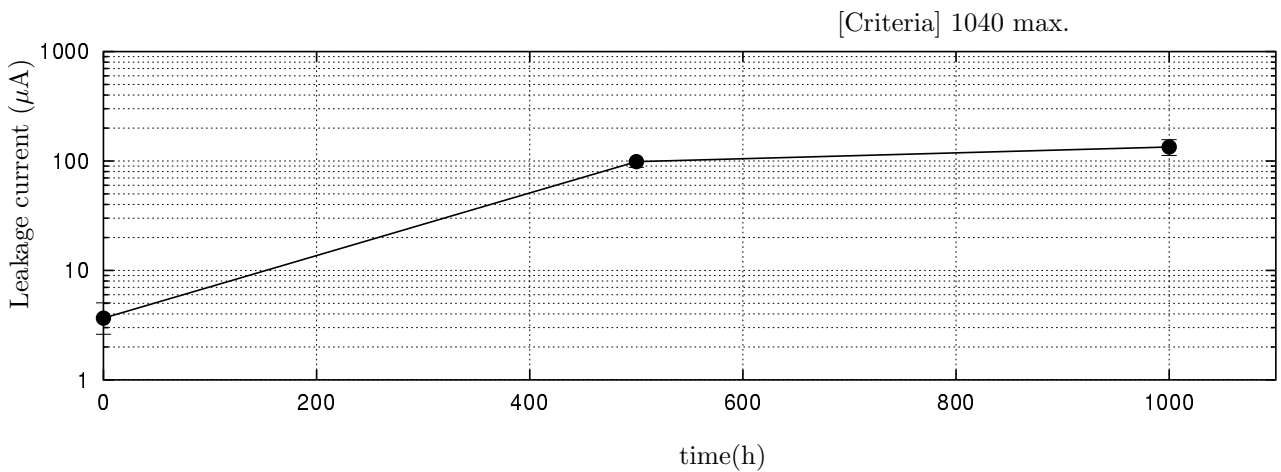
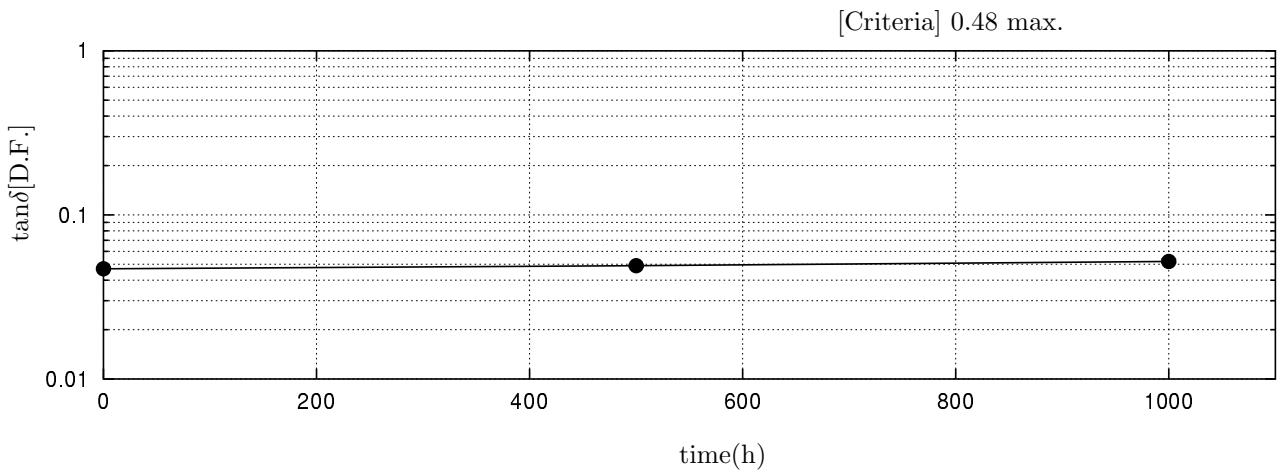
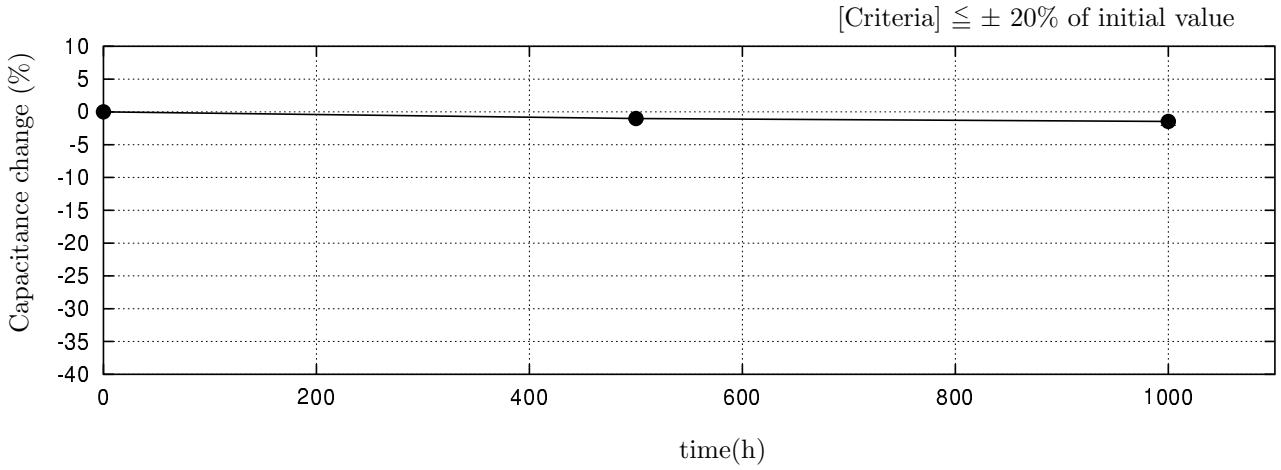
Aluminum Electrolytic Capacitor Reliability data

| Test name       |                    | Shelf life              |                         |                          |                 |
|-----------------|--------------------|-------------------------|-------------------------|--------------------------|-----------------|
| Test temp.      | 105 (°C)           | Leakage Current (Volt)  | 250 (V)                 | Measurement LCR meter    | 4284A           |
| Applied Voltage | (V)                | Leakage Current (Time)  | 1 (min)                 | Measurement Freq.        | 120 (Hz)        |
| Ripple Current  | (Arms)             | Leakage Current (Temp.) | 20 (°C)                 | Measurement Temp.        | 20 (°C)         |
| Ripple freq.    | (Hz)               |                         |                         | Specified Period of Time | 1000 (h)        |
| Mark            | Part No.           | Rated Voltage(V)        | Nominal Capacitance(μF) | Case Size(φ × L)mm       | Tested qty(pcs) |
| ●               | EKXG251ELL470MK20S | 250                     | 47                      | φ 12.5×20 L              | 10              |



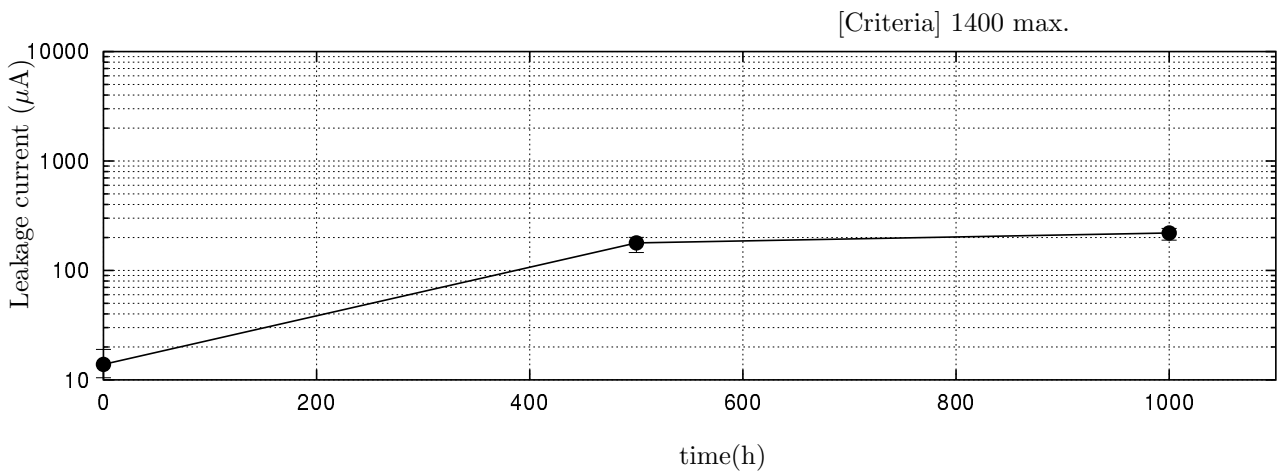
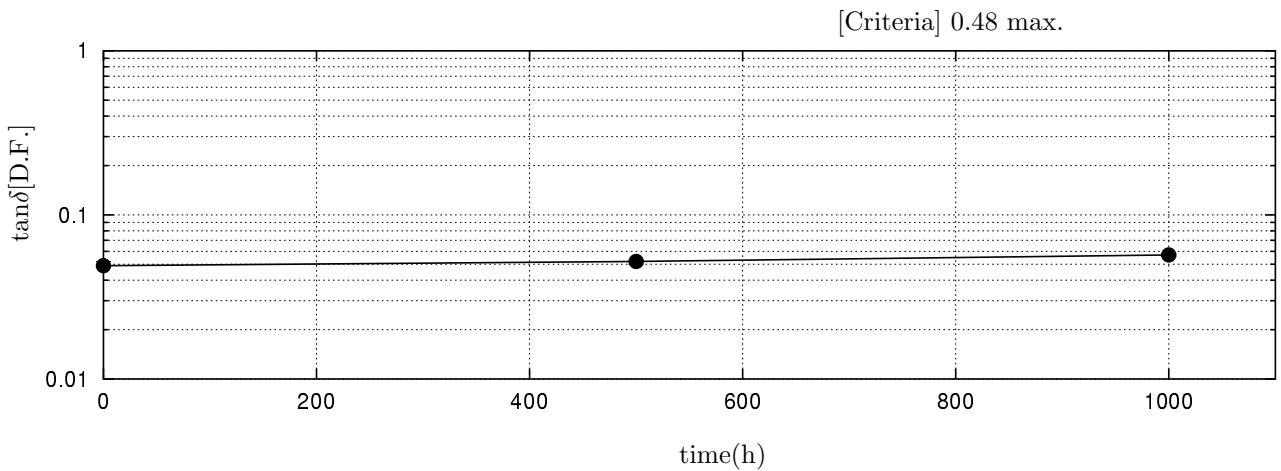
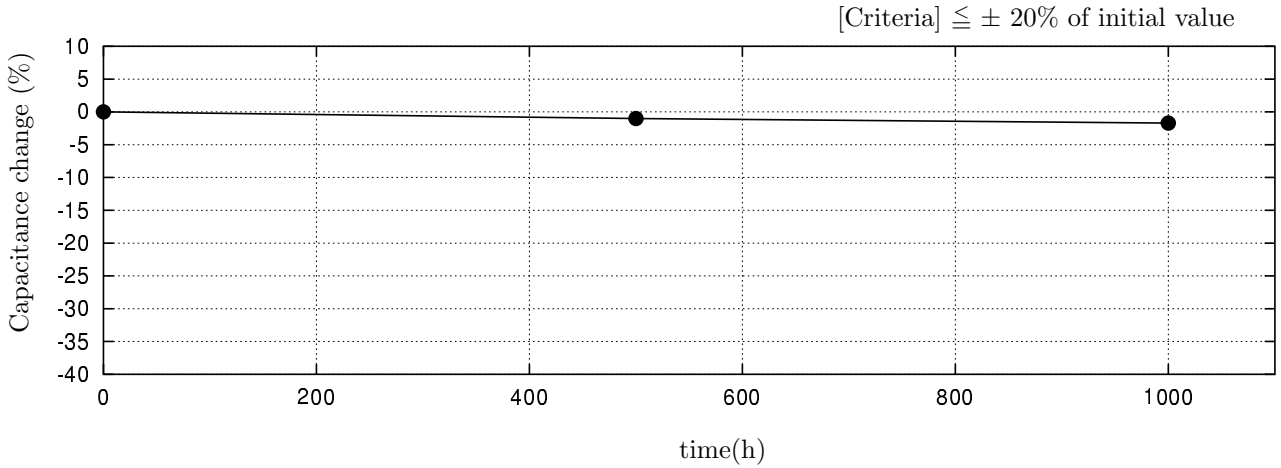
Aluminum Electrolytic Capacitor Reliability data

| Test name       |                    | Shelf life              |                         |                          |                 |
|-----------------|--------------------|-------------------------|-------------------------|--------------------------|-----------------|
| Test temp.      | 105 (°C)           | Leakage Current (Volt)  | 400 (V)                 | Measurement LCR meter    | 4284A           |
| Applied Voltage | (V)                | Leakage Current (Time)  | 1 (min)                 | Measurement Freq.        | 120 (Hz)        |
| Ripple Current  | (Arms)             | Leakage Current (Temp.) | 20 (°C)                 | Measurement Temp.        | 20 (°C)         |
| Ripple freq.    | (Hz)               |                         |                         | Specified Period of Time | 1000 (h)        |
| Mark            | Part No.           | Rated Voltage(V)        | Nominal Capacitance(μF) | Case Size(φ × L)mm       | Tested qty(pcs) |
| ●               | EKXG401ELL6R8MJ16S | 400                     | 6.8                     | φ 10×16 L                | 10              |



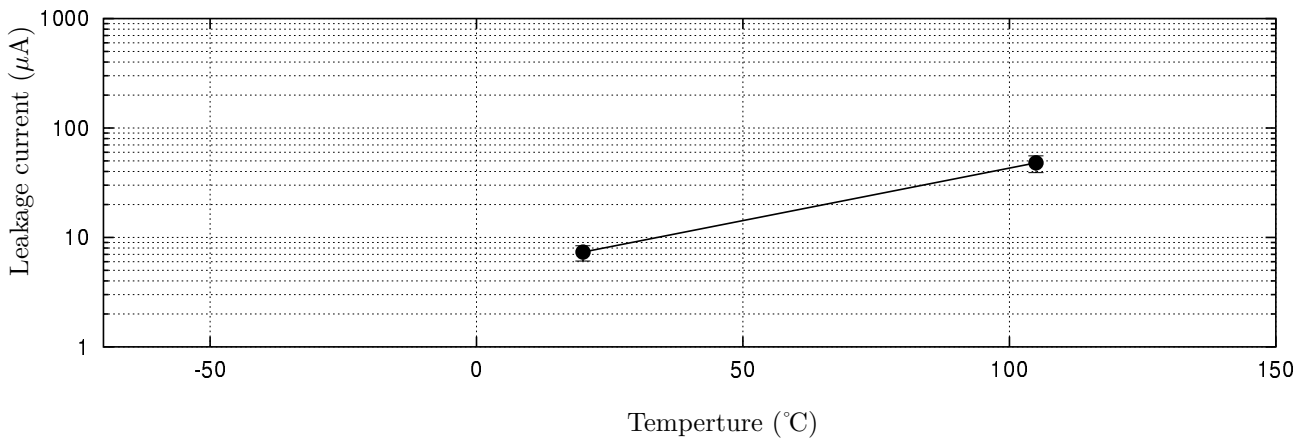
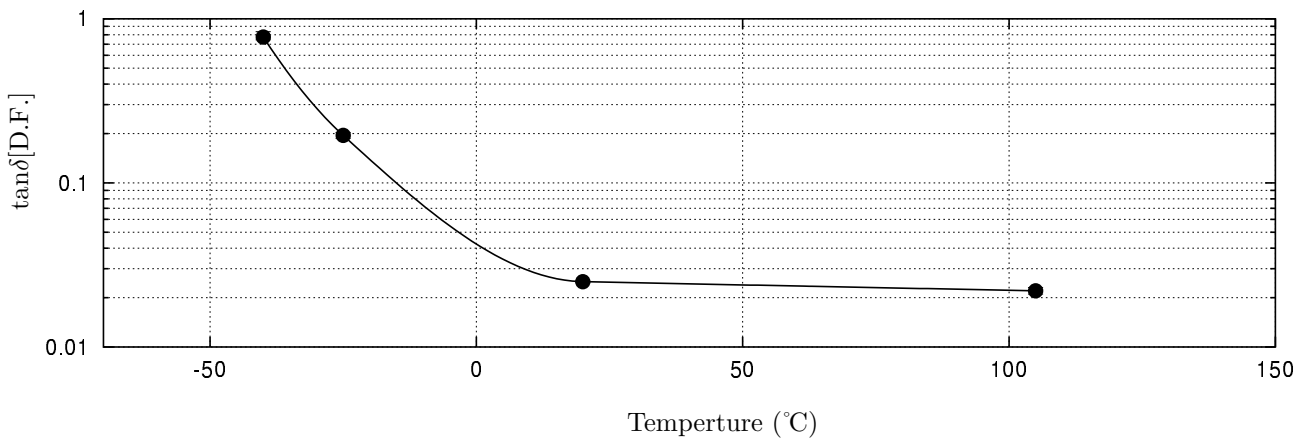
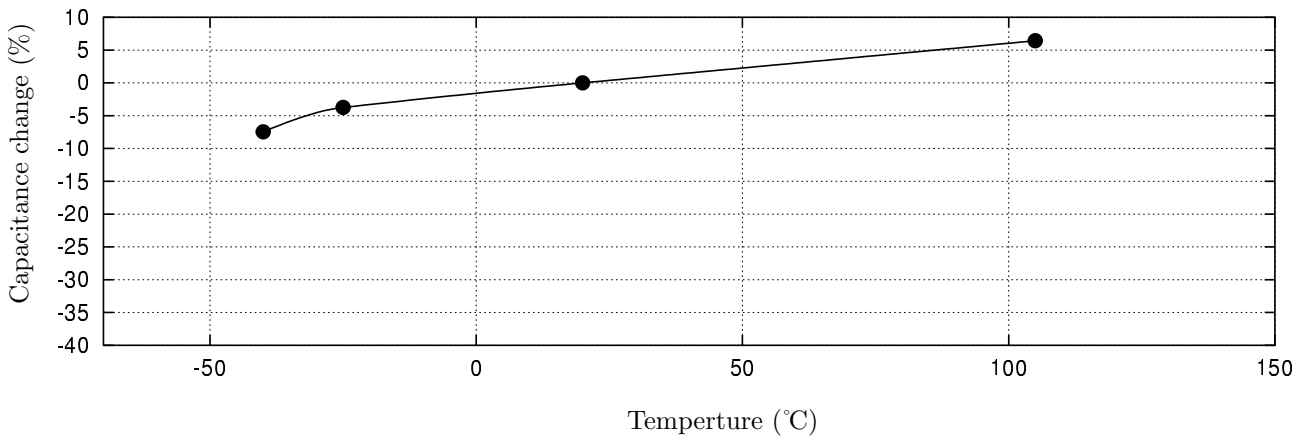
Aluminum Electrolytic Capacitor Reliability data

| Test name       |                    | Shelf life              |                         |                          |                 |
|-----------------|--------------------|-------------------------|-------------------------|--------------------------|-----------------|
| Test temp.      | 105 (°C)           | Leakage Current (Volt)  | 450 (V)                 | Measurement LCR meter    | 4284A           |
| Applied Voltage | (V)                | Leakage Current (Time)  | 1 (min)                 | Measurement Freq.        | 120 (Hz)        |
| Ripple Current  | (Arms)             | Leakage Current (Temp.) | 20 (°C)                 | Measurement Temp.        | 20 (°C)         |
| Ripple freq.    | (Hz)               |                         |                         | Specified Period of Time | 1000 (h)        |
| Mark            | Part No.           | Rated Voltage(V)        | Nominal Capacitance(μF) | Case Size(φ × L)mm       | Tested qty(pcs) |
| ●               | EKXG451ELL100MK20S | 450                     | 10                      | φ 12.5×20 L              | 10              |



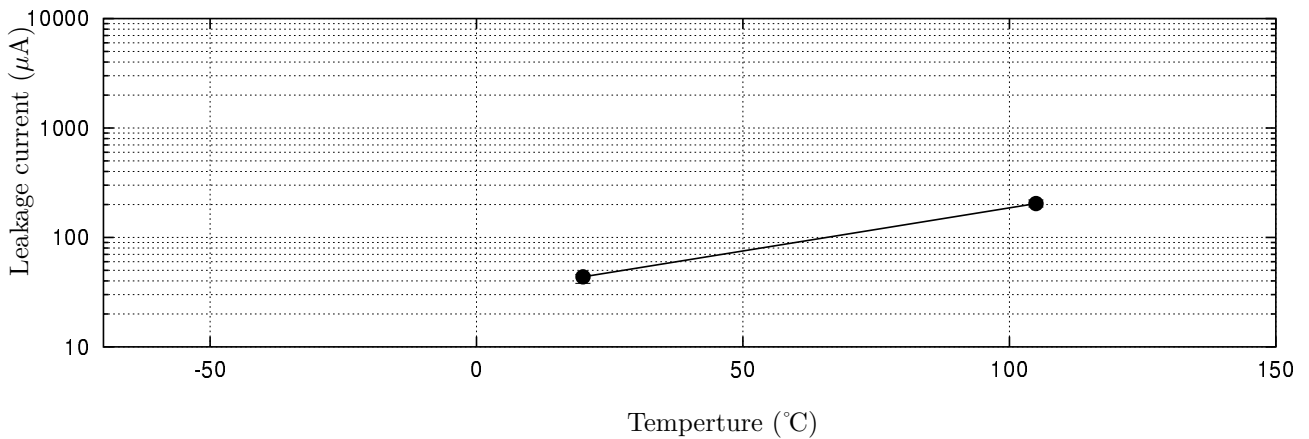
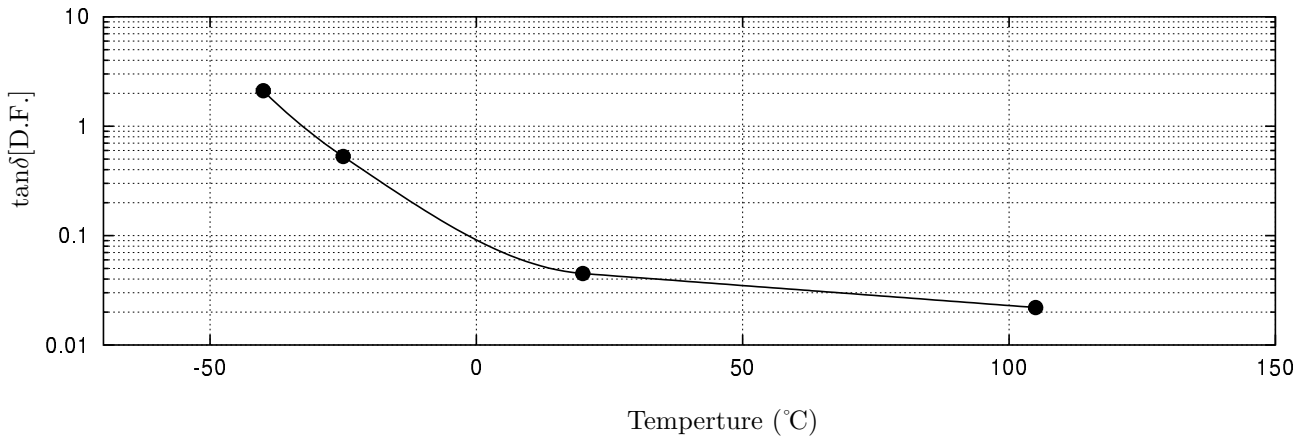
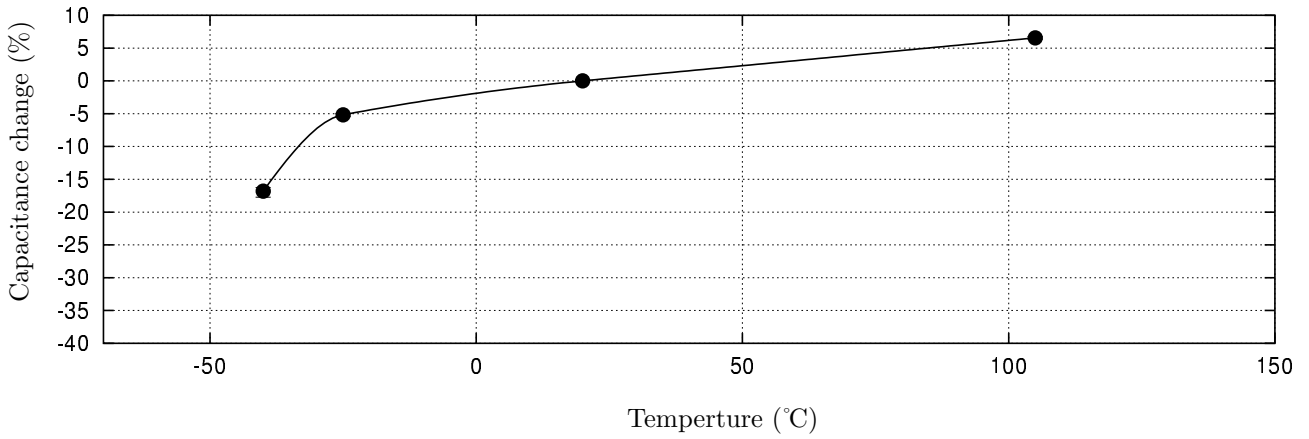
Aluminum Electrolytic Capacitor Reliability data

| Test name                          |                    |                        |                         |                       |                 |
|------------------------------------|--------------------|------------------------|-------------------------|-----------------------|-----------------|
| <b>Temperature Characteristics</b> |                    |                        |                         |                       |                 |
| Test temp.                         | -40 ~ 105 (°C)     | Leakage Current (Volt) | 160 (V)                 | Measurement LCR meter | 4284A           |
|                                    |                    | Leakage Current (Time) | 1 (min)                 | Measurement Freq.     | 120 (Hz)        |
| Mark                               | Part No.           | Rated Voltage(V)       | Nominal Capacitance(μF) | Case Size(φ × L)mm    | Tested qty(pcs) |
| ●                                  | EKXG161ELL220MJ20S | 160                    | 22                      | φ 10×20 L             | 3               |



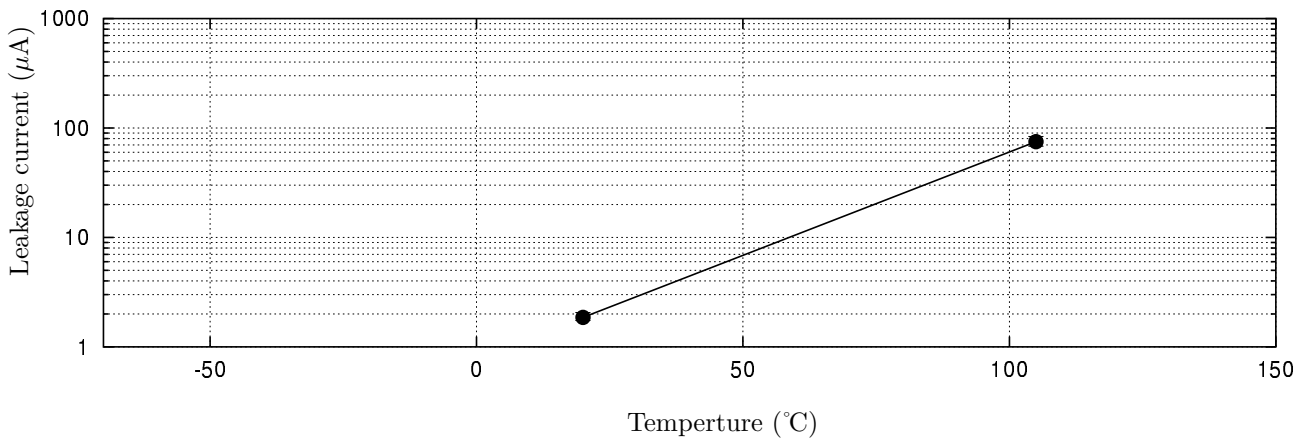
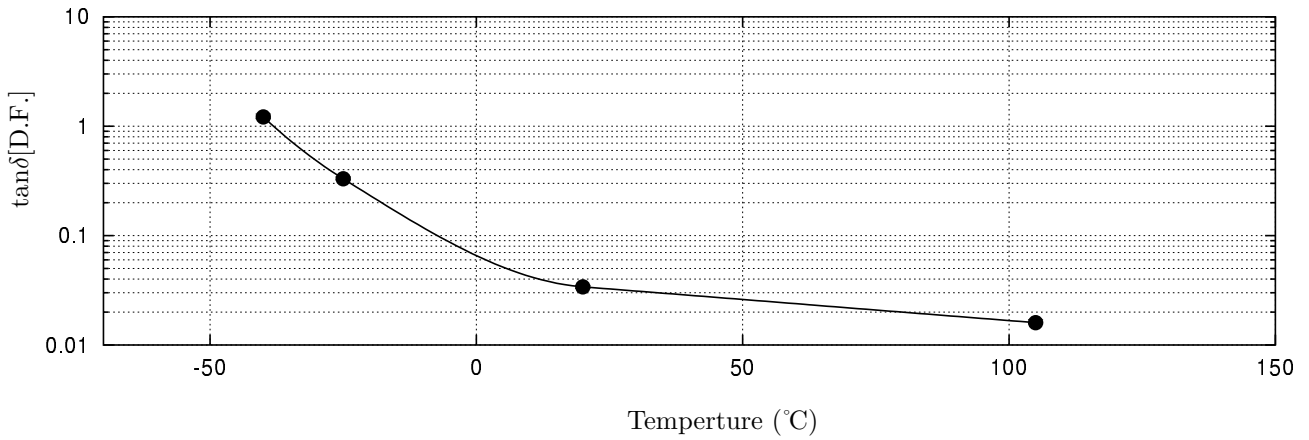
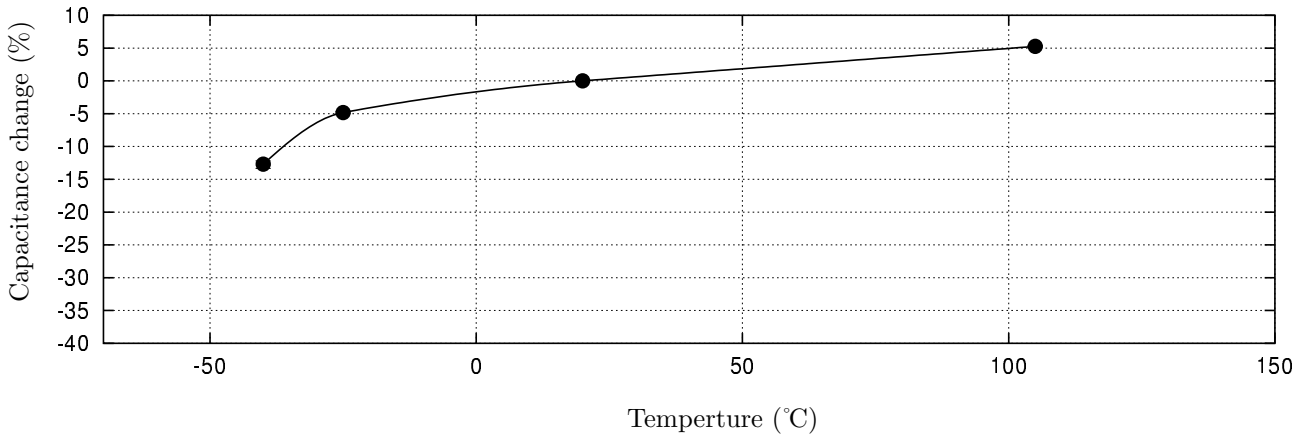
Aluminum Electrolytic Capacitor Reliability data

| Test name                          |                    |                                |                             |                    |                 |
|------------------------------------|--------------------|--------------------------------|-----------------------------|--------------------|-----------------|
| <b>Temperature Characteristics</b> |                    |                                |                             |                    |                 |
| Test temp. -40 ~ 105 (°C)          |                    | Leakage Current (Volt) 160 (V) | Measurement LCR meter 4284A |                    |                 |
|                                    |                    | Leakage Current (Time) 1 (min) | Measurement Freq. 120 (Hz)  |                    |                 |
| Mark                               | Part No.           | Rated Voltage(V)               | Nominal Capacitance(μF)     | Case Size(φ × L)mm | Tested qty(pcs) |
| ●                                  | EKXG161ELL221ML25S | 160                            | 220                         | φ 16×25 L          | 3               |



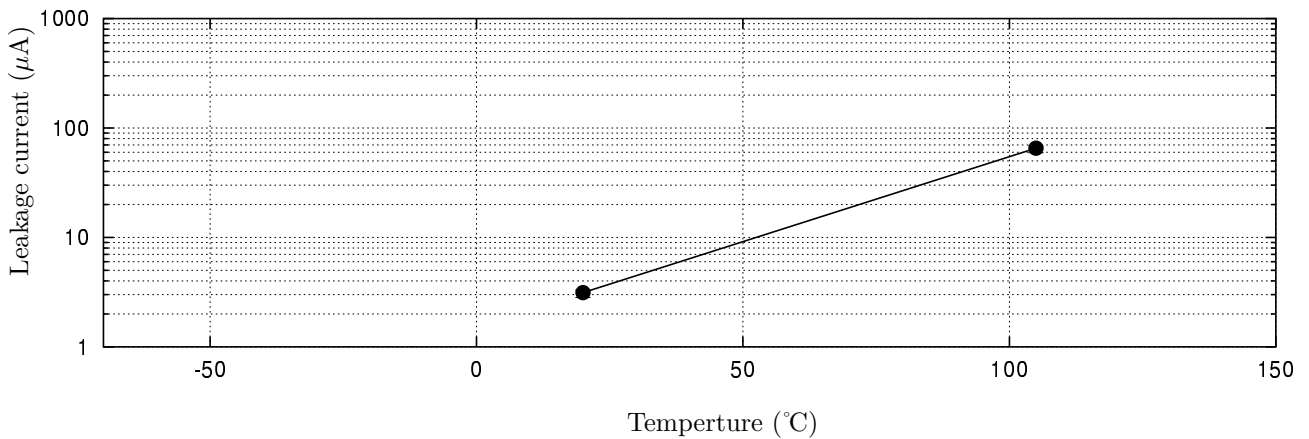
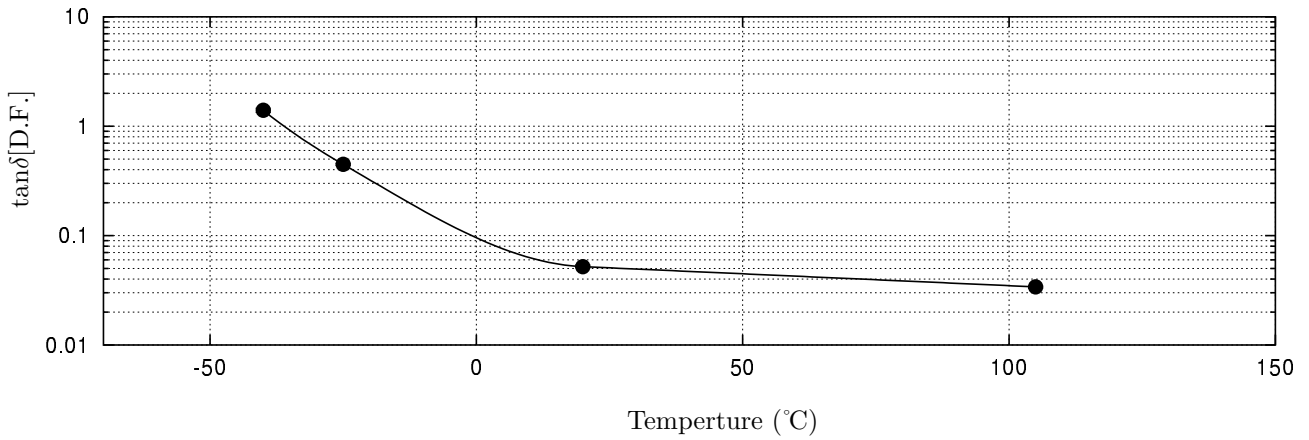
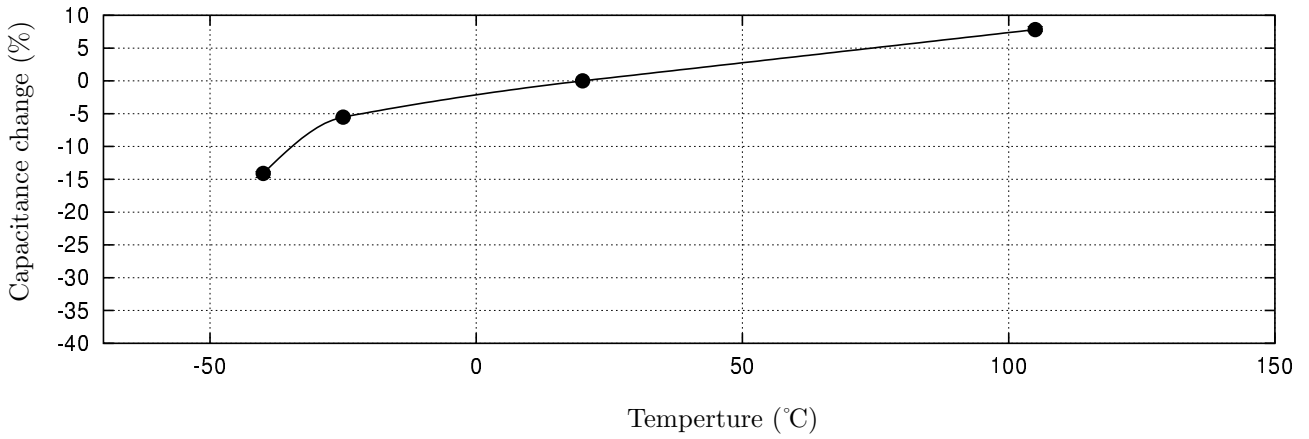
Aluminum Electrolytic Capacitor Reliability data

| Test name                          |                    |                                |                             |                    |                 |
|------------------------------------|--------------------|--------------------------------|-----------------------------|--------------------|-----------------|
| <b>Temperature Characteristics</b> |                    |                                |                             |                    |                 |
| Test temp. -40 ~ 105 (°C)          |                    | Leakage Current (Volt) 250 (V) | Measurement LCR meter 4284A |                    |                 |
|                                    |                    | Leakage Current (Time) 1 (min) | Measurement Freq. 120 (Hz)  |                    |                 |
| Mark                               | Part No.           | Rated Voltage(V)               | Nominal Capacitance(μF)     | Case Size(φ × L)mm | Tested qty(pcs) |
| ●                                  | EKXG251ELL470MK20S | 250                            | 47                          | φ 12.5×20 L        | 3               |



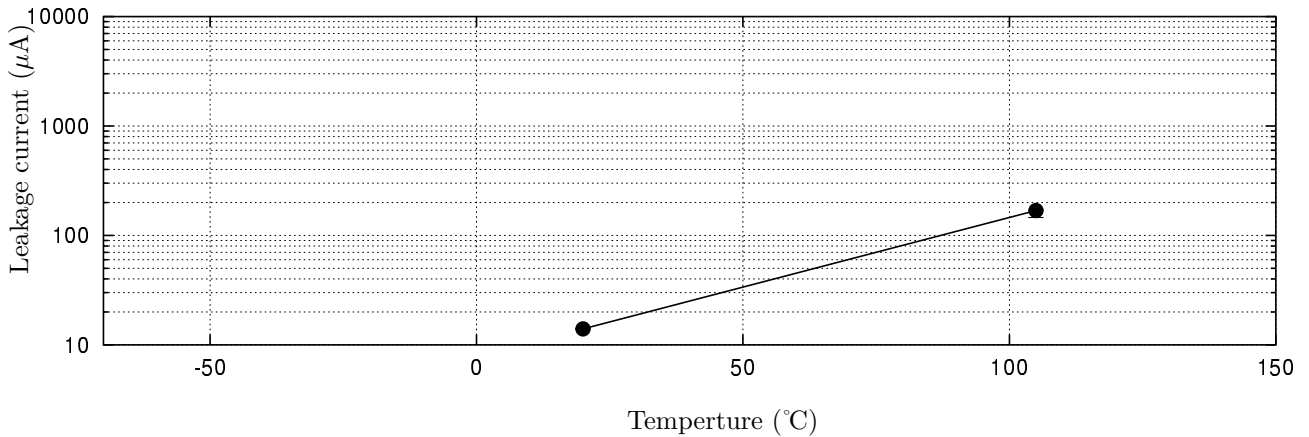
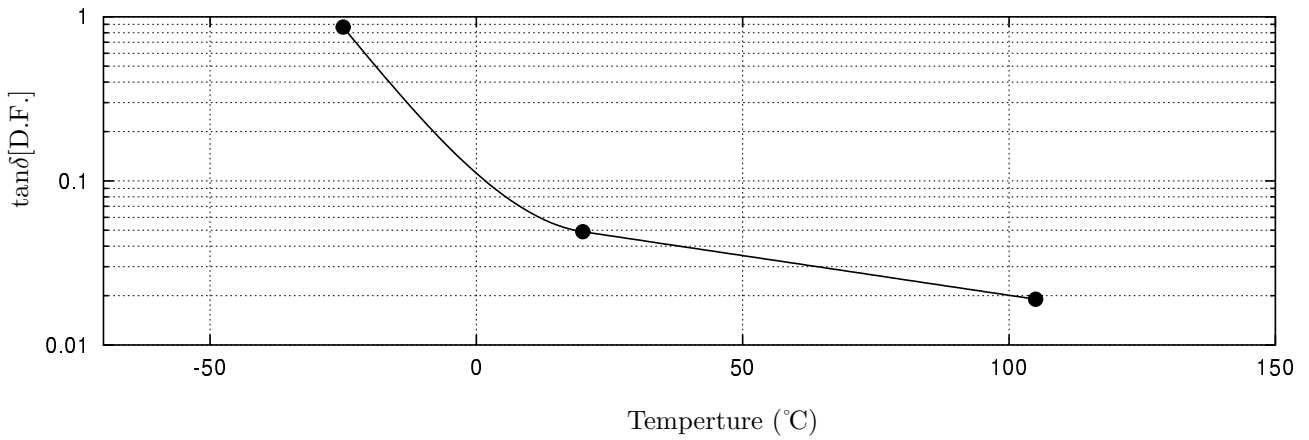
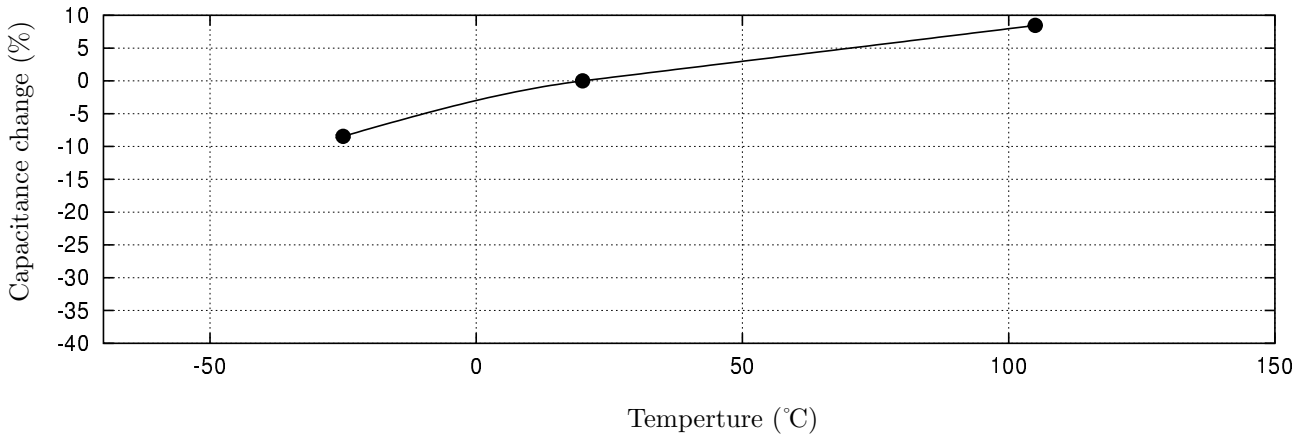
Aluminum Electrolytic Capacitor Reliability data

| Test name                          |                    |                                |                             |                    |                 |
|------------------------------------|--------------------|--------------------------------|-----------------------------|--------------------|-----------------|
| <b>Temperature Characteristics</b> |                    |                                |                             |                    |                 |
| Test temp. -40 ~ 105 (°C)          |                    | Leakage Current (Volt) 400 (V) | Measurement LCR meter 4284A |                    |                 |
|                                    |                    | Leakage Current (Time) 1 (min) | Measurement Freq. 120 (Hz)  |                    |                 |
| Mark                               | Part No.           | Rated Voltage(V)               | Nominal Capacitance(μF)     | Case Size(φ × L)mm | Tested qty(pcs) |
| ●                                  | EKXG401ELL6R8MJ16S | 400                            | 6.8                         | φ 10×16 L          | 3               |



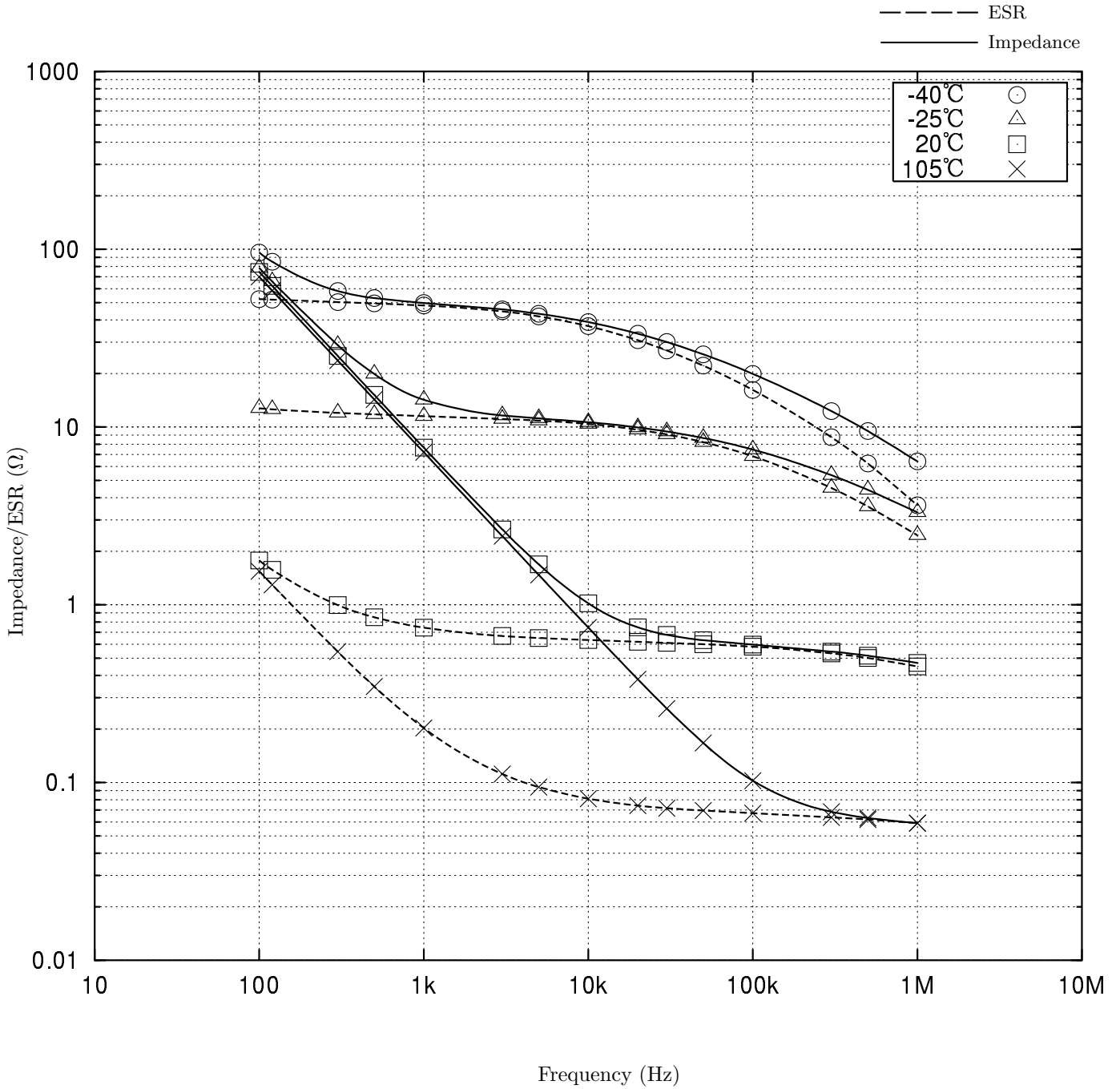
Aluminum Electrolytic Capacitor Reliability data

| Test name                          |                    |                                |                             |                    |                 |
|------------------------------------|--------------------|--------------------------------|-----------------------------|--------------------|-----------------|
| <b>Temperature Characteristics</b> |                    |                                |                             |                    |                 |
| Test temp. -25 ~ 105 (°C)          |                    | Leakage Current (Volt) 450 (V) | Measurement LCR meter 4284A |                    |                 |
|                                    |                    | Leakage Current (Time) 1 (min) | Measurement Freq. 120 (Hz)  |                    |                 |
| Mark                               | Part No.           | Rated Voltage(V)               | Nominal Capacitance(μF)     | Case Size(φ × L)mm | Tested qty(pcs) |
| ●                                  | EKXG451ELL100MK20S | 450                            | 10                          | φ 12.5×20 L        | 3               |



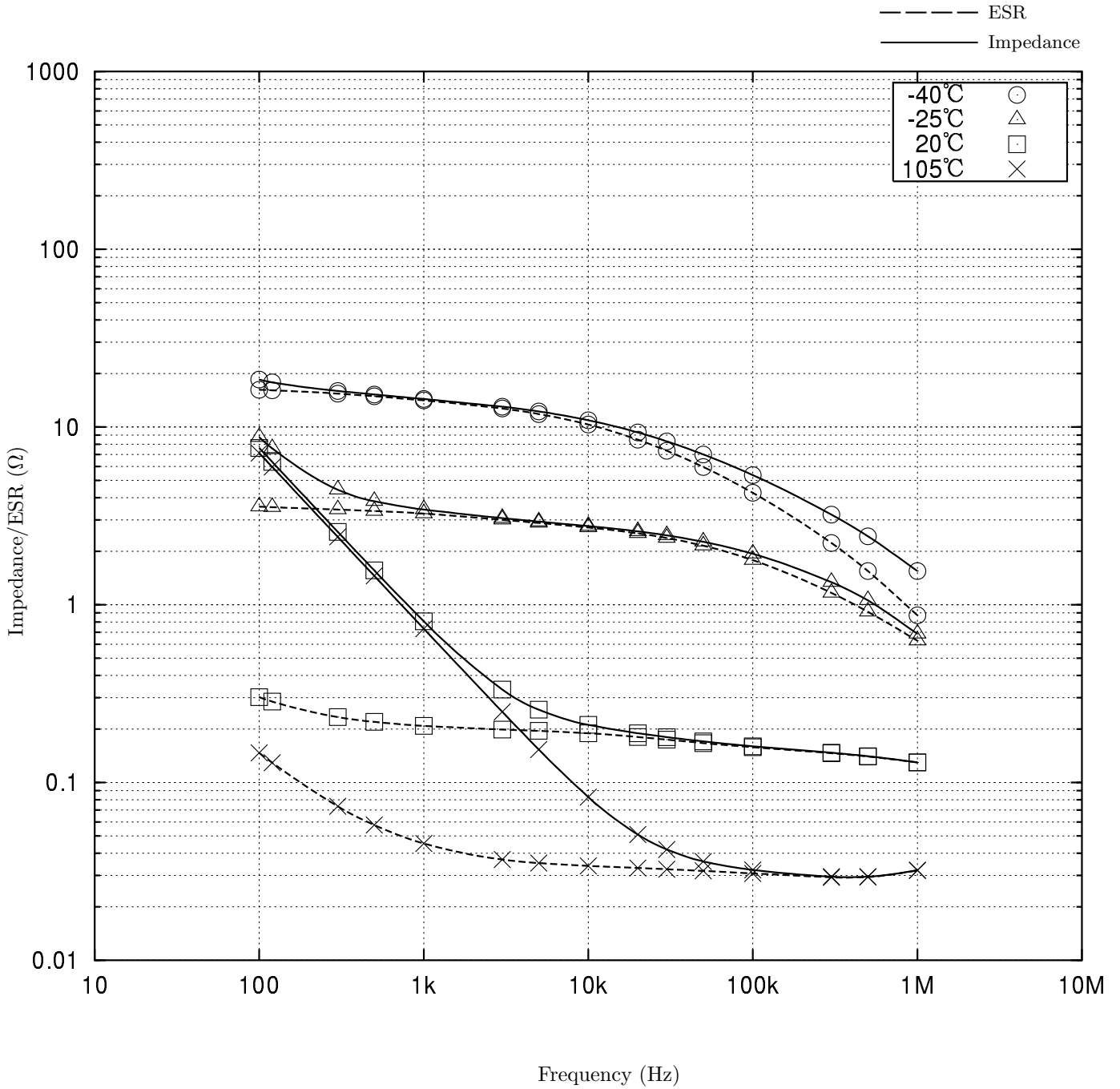
Aluminum Electrolytic Capacitor Reliability data

|                    |  |                  |  |                         |  |                    |  |                 |  |
|--------------------|--|------------------|--|-------------------------|--|--------------------|--|-----------------|--|
| Test name          |  |                  |  |                         | Frequency-Impedance/ESR Characteristics    |                    |  |                 |  |
| Test temp.         |  |                  |  |                         | -40 ~ 105 (°C) Measurement LCR meter 4284A |                    |  |                 |  |
| Part No.           |  | Rated Voltage(V) |  | Nominal Capacitance(μF) |  | Case Size(φ × L)mm |  | Tested qty(pcs) |  |
| EKXG161ELL220MJ20S |  | 160              |  | 22                      |  | φ 10×20 L          |  | 3               |  |



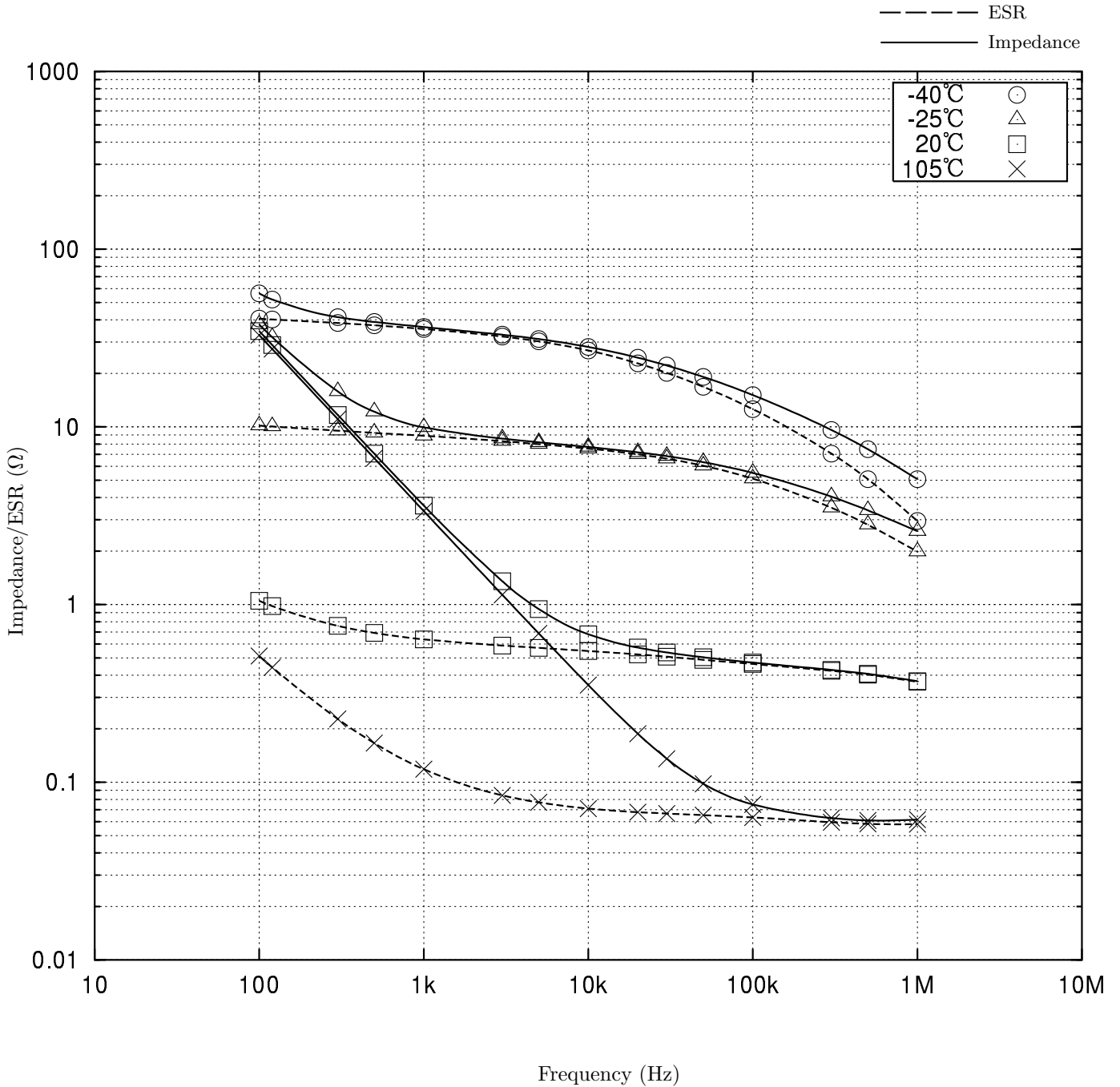
Aluminum Electrolytic Capacitor Reliability data

|  |                  |                         |                    |                 |
|--|------------------|-------------------------|--------------------|-----------------|
| Test name <b>Frequency-Impedance/ESR Characteristics</b> |                  |                         |                    |                 |
| Test temp. -40 ~ 105 (°C) Measurement LCR meter 4284A    |                  |                         |                    |                 |
| Part No.   | Rated Voltage(V) | Nominal Capacitance(μF) | Case Size(φ × L)mm | Tested qty(pcs) |
| EKXG161ELL221ML25S                                       | 160              | 220                     | φ 16×25 L          | 3               |



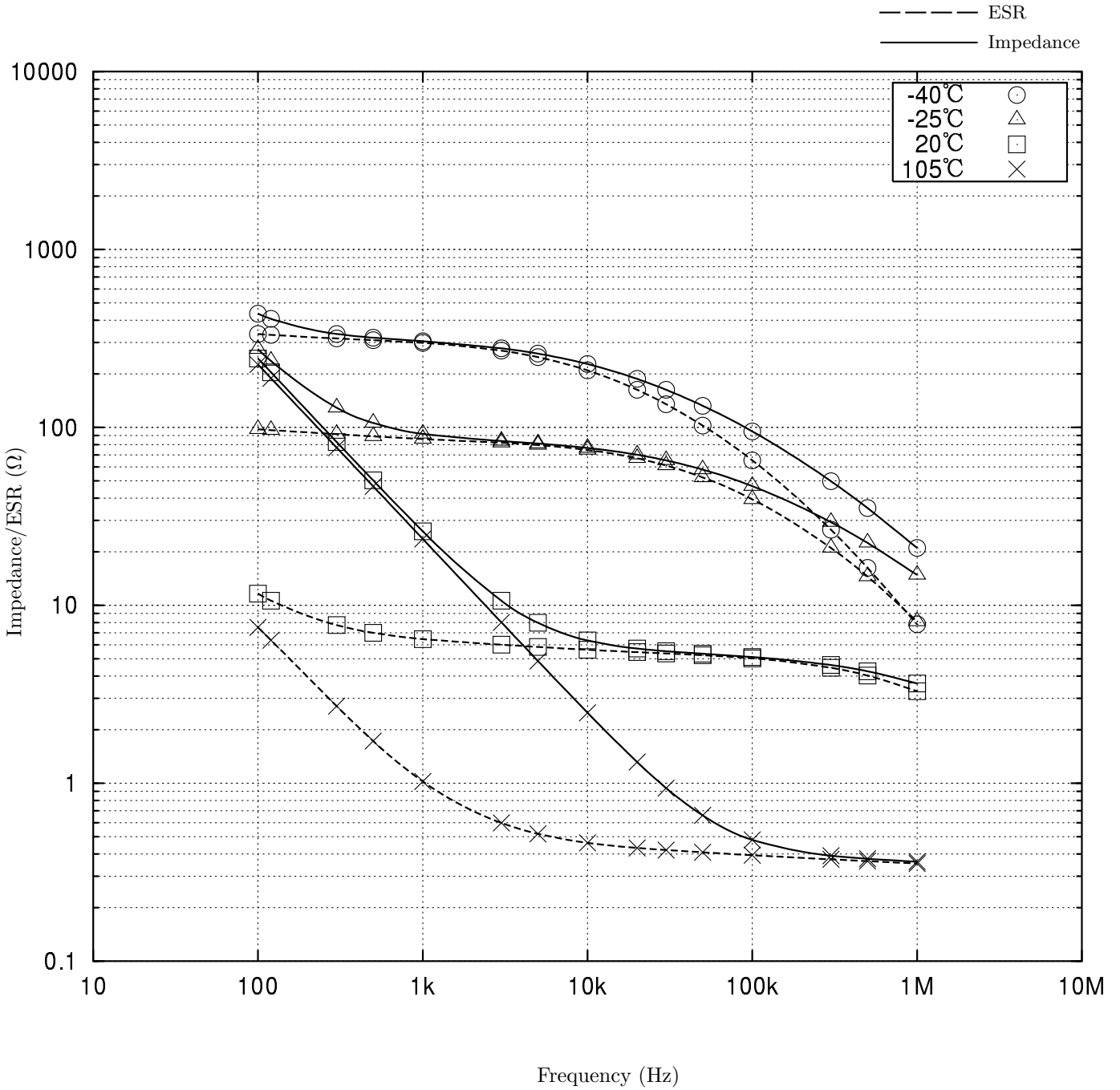
Aluminum Electrolytic Capacitor Reliability data

|                    |  |                  |  |                         |  |                    |  |                 |  |
|--------------------|--|------------------|--|-------------------------|--|--------------------|--|-----------------|--|
| Test name          |  |                  |  |                         | Frequency-Impedance/ESR Characteristics    |                    |  |                 |  |
| Test temp.         |  |                  |  |                         | -40 ~ 105 (°C) Measurement LCR meter 4284A |                    |  |                 |  |
| Part No.           |  | Rated Voltage(V) |  | Nominal Capacitance(μF) |  | Case Size(φ × L)mm |  | Tested qty(pcs) |  |
| EKXG251ELL470MK20S |  | 250              |  | 47                      |  | φ 12.5×20 L        |  | 3               |  |



Aluminum Electrolytic Capacitor Reliability data

|                    |  |                  |  |                         |  |                    |  |                 |  |
|--------------------|--|------------------|--|-------------------------|--|--------------------|--|-----------------|--|
| Test name          |  |                  |  |                         | Frequency-Impedance/ESR Characteristics    |                    |  |                 |  |
| Test temp.         |  |                  |  |                         | -40 ~ 105 (°C) Measurement LCR meter 4284A |                    |  |                 |  |
| Part No.           |  | Rated Voltage(V) |  | Nominal Capacitance(μF) |  | Case Size(φ × L)mm |  | Tested qty(pcs) |  |
| EKXG401ELL6R8MJ16S |  | 400              |  | 6.8                     |  | φ 10×16 L          |  | 3               |  |



Aluminum Electrolytic Capacitor Reliability data

|                    |  |                  |  |                         |  |                    |  |                 |  |
|--------------------|--|------------------|--|-------------------------|--|--------------------|--|-----------------|--|
| Test name          |  |                  |  |                         | Frequency-Impedance/ESR Characteristics    |                    |  |                 |  |
| Test temp.         |  |                  |  |                         | -25 ~ 105 (°C) Measurement LCR meter 4284A |                    |  |                 |  |
| Part No.           |  | Rated Voltage(V) |  | Nominal Capacitance(μF) |  | Case Size(φ × L)mm |  | Tested qty(pcs) |  |
| EKXG451ELL100MK20S |  | 450              |  | 10                      |  | φ 12.5×20 L        |  | 3               |  |

